




Vol. I

PORTRAIT OF A BICYCLE COMMITTEE

 A key element in the success of Eugene, Oregon's thriving system of bicycle lanes, paths and bridges is its citizen/staff bicycle committee. At least once a month for more than a decade at the daunting hour of 7:30 a.m. the Eugene Bicycle Committee, composed of five citizens and five staff, has met to solve bicycle problems.

HISTORY OF THE COMMITTEE. In 1970 the Eugene City Council, nudged along by a mayor who was a cyclist himself, suggested a bicycle committee. The Committee's first members were five staff persons from relevant departments: public works, traffic engineering, planning, parks and police. Looking back from the perspective of 1980, the former traffic engineer remembered that his division "was not all that excited about a bicycle committee." The strong emphasis on automobile and pedestrian safety overextended available staff services. In addition, the traffic engineer and other staff members felt that a good bicycle program was probably not attainable. The City Manager, another cyclist, added five lay members in January 1971. These members, in contrast, believed a good bicycle program was possible.

In the early years of the Committee, the citizens tended to work harder and show more interest than did staff. Now the reverse is true. It is mostly staff that keeps the well-established program rolling. However, the tradition of a citizen chairman, established during the early years, remains.

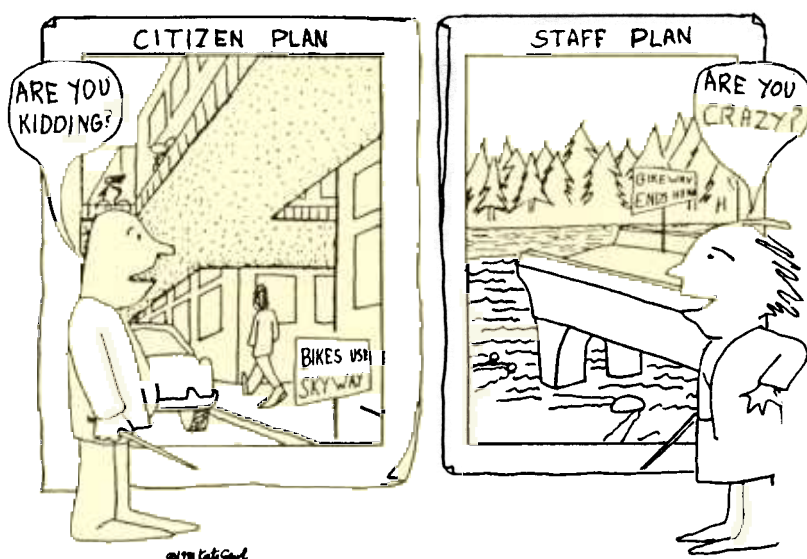
In 1972 citizen members put together a temporary bikeway plan by simply observing where bicyclists were riding or would be likely to ride if they could. Staff, principally the traffic engineer, recognized the need for a more comprehensive plan. With \$40,000 in Federal Highway safety money, he hired a professional consultant to prepare one. Engineers from DeLeuw, Cather & Company of San Francisco worked for one year with citizen and staff members of the Committee to develop the Eugene Bikeways Master Plan. Updated every year, the Master Plan guides development of the City's cycling program.



COMPOSITION OF THE COMMITTEE. One of the most significant factors as well as one of the most easily overlooked is the staff/citizen composition of the city bicycle committee. This structure makes possible a continuing, innovative dialogue between staff professionals and lay people.

The five citizen members are appointed by the Mayor. Two of the original five still serve--a homemaker and a professor at the University of Oregon. All use their bicycles regularly for transportation. Staff are appointed by the City Manager and represent the various parts of city government. The staff contingent presently includes the traffic engineer, the city engineer, and representatives from the parks, planning, and police departments. Bicycle experience is not a requirement but converts do emerge from Committee exposure. Though they were initially non-cyclists, the present and former city traffic engineers have grown from grudging acceptance to genuine interest.

ROLES OF CITIZEN AND STAFF COMMITTEE MEMBERS. Staff and citizen members complement each other. Over the years, each segment has demonstrated particular strengths. Citizen members often provide enthusiasm, a fresh perspective, innovative ideas and a voice for the bicycle constituency. The staff provides technical expertise, manpower for mundane tasks, and a tempering influence. In case of conflict, the mutual respect among members and their concentration on issues rather than personalities have helped avoid a lay-professional dichotomy.



Particularly in the early years of the Committee, it was the responsibility of the citizen members to fight for bicycle funds in the City's budget. The junior staff members who served on the Committee were clearly unable to ask for budget items over the heads of their superiors. However, citizen members could unabashedly go straight to the City Council to seek funding for bicycle projects. In 1972 citizens won from the Council, without staff approval, the first budget entry for bikeways: \$30,000.

With adoption of the Master Plan in 1974 by the Eugene City Council, the Eugene Bicycle Committee came of age. Not only was a \$75,000 bicycle item included in the yearly capital budget, but, equally important, the department directors from public works, planning and parks became staff members of the Committee for several years. Budget discussions in recent years have centered on content, not amount. Special appeals to the City Council are usually unnecessary.

Soon after the Council unanimously approved the Bikeways Master Plan in 1974, the first attempt to remove parking and provide bike lanes began. Each segment of the Committee had its own job to do. The traffic engineer guided the parking removal proposal through the notification and appeal process. The citizen members won the crucial Council vote. Between them, the difficult job was accomplished.

As early as 1971, the Committee had identified the need for a bicycle-pedestrian bridge across the Willamette River to Valley River Center, a new regional shopping center. In



Eugene's citizen/staff Bicycle Committee, meets from 7:30 a.m. to 9:00 a.m. on the first Tuesday of each month. During the fall when the Bikeway Master Plan is updated and budget items are developed, the Committee meets twice per month.




City Engineer Bert Teitzel explains a bikeway design proposal to the Traffic Engineer, the Bicycle Coordinator, representatives of parks and planning departments, and citizen members.

1975, staff members prepared an application for National Bikeway Demonstration Funds for a \$300,000 bridge. When the project lost at the regional level, undaunted citizen members rewrote the proposal, added pictures, staged a letter-writing and political string-pulling effort, and pulled the plum from the federal pie. When it came time to dedicate the Greenway Bridge and thank US Senator Robert Packwood, city staff handled the publicity, the appropriate plaque, and the VIP luncheon. Citizen members pitched in with flowers on the bridge, a parade, and even punch and cookies for those who came to the celebration.

The City Bicycle Coordinator, a position created and funded in 1975, now provides a central reception point for bicycle matters and is responsible for day-to-day duties involving the construction and maintenance of the bikeway network. Though not a voting Committee member, the Bicycle Coordinator prepares the Bicycle Committee's agendas and oversees distribution of minutes and materials for the monthly or semi-monthly meetings.

OTHER ADVANTAGES OF A CITIZEN/STAFF COMMITTEE. As an advisory committee to the City Council, the Bicycle Committee's recommendation carries more weight when it achieves a citizen-staff consensus. Although it can make recommendations by a simple majority vote, a vote with even one or two dissenters generally indicates it is wise to back up and talk some more. On the other hand, disputes sure to arise between public works and planning have been settled when the full weight and wisdom of the Committee sided with one department director or the other. If consensus is not reached on a bike route, for example, an on-site, on-bicycle review by a subcommittee of staff and citizen members usually provides a plan the full committee will accept.

When a city bicycle program relies too heavily on a single person such as the traffic engineer or bicycle coordinator, that individual's departure can set the program back a year or two--or even damage a fledgling program irreparably. In Eugene, several personnel losses have been accommodated with little loss of momentum. The presence of a regular committee with a body of wisdom shared by the continuing members provides a buffer against these losses. Both citizen and staff members are able to pick up the slack. The program need not die and have to be restarted, and replacements are more quickly trained. Under the guidance of the Committee, three bicycle coordinators gained their stripes and two traffic engineers learned to think bicycles.

Year-to-year continuity and the regular monthly dialogue fostered by the citizen/staff bicycle committee emerge as major factors in the success of Eugene's bicycle program. 

Bylaws written in 1971 and revised in 1975 provide the framework and focus for the Committee.

BYLAWS — EUGENE BICYCLE COMMITTEE

ARTICLE I — NAME.

This committee, established by the Mayor of the City of Eugene, shall be called the Eugene Bicycle Committee.

ARTICLE II — PURPOSE.

The purpose of the committee is to advise the City government of Eugene in the encouragement and facilitation of the use of bicycles as a regular means of transportation and recreation. The responsibilities of the committee shall include but not be limited to:

Section 1. Bikeway Policy

- a. *Review:* Reviewing the Eugene Bikeways Master Plan at least annually and proposing plan amendments based on this review.
- b. *Budget and Priorities:* Establishing each year a list of recommended bikeway priorities to be drawn up after the annual review and to serve as a proposed bikeway budget for the coming year.
- c. *Coordination:* Maintaining contact with metro and state bicycle programs and plans to insure compatibility.

Section 2. Bikeway Implementation

- a. *Design Review:* Reviewing and approving preliminary and final plans for financing and creating specific bikeways.
- b. *Conflict Resolution:* Seeking consensus among staff, committee, affected citizens, and neighborhood or other interested groups on bikeway design and implementation.

Section 3. Education and Enforcement

Promoting and implementing educational and law enforcement programs called for by the Master Plan.

Section 4. Citizen Contact

- a. *Information:* Keeping the public informed about existing and proposed bikeways and bicycle programs.
- b. *Input:* Encouraging citizen participation in identifying problem areas, reviewing existing facilities, and planning and implementing new ones.

ARTICLE III — MEMBERSHIP

Section 1. Composition of the Committee

The voting membership of the committee shall consist of five members of the professional staff of the City Government of Eugene and five lay members who are citizens of Eugene.

Section 2. Appointment

Citizen members shall be appointed by the Mayor and staff members shall be appointed by the City Manager. Recommendations for membership may be made by any interested citizen, the committee, City Council or the City Manager.

Section 3. Tenure

All citizen members shall serve until they resign or are removed by the Mayor. If any citizen member of the committee shall be absent from three consecutive regular meetings, the Mayor may, upon recommendation from the Chair, declare this position vacant.

Section 4. Voting Privileges

Each of the ten voting members of the committee shall be entitled to one vote on all issues presented at meetings at which the member is present.

Section 5. Officers

The officers shall be a Chair, who shall be a citizen member, and a Vice-Chair, who shall be a staff member.

Section 6. Sub-Committees

The officers shall appoint sub-committees as needed. Either citizens or staff may be members of a sub-committee.

ARTICLE IV — MEETINGS

Section 1. Regular Meetings

Regular meetings shall be held monthly at the City Hall, unless otherwise agreed upon. Time and duration of the meetings shall be determined by the committee.

Section 2. Conduct of Meetings

- a. A majority of members (six) shall constitute a quorum for the transaction of business at any regular meeting.
- b. The Act of a majority of the members present at a meeting at which there is a quorum shall be the act of the committee.

ARTICLE V — AMENDMENTS TO THE BYLAWS

The Bylaws may be amended at any regular meeting of the committee by a majority of the voting membership (six affirmative votes) of the committee, provided that written notice of the proposed amendment is mailed to each member of the committee not less than one (1) week prior to such meeting.

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Vol. II

EUGENE BIKEWAYS MASTER PLAN

 What if they built a bikeway and nobody rode it?

This almost happened with Eugene's first route, a signed approach to the University of Oregon. After this maiden route was opened, use revealed that it was not the preferred approach to the University campus. The moderately stiff climb was enough to shunt bicyclists to a parallel unsigned street. Eugene learned a valuable lesson: bikeways that work best go where the bicyclists go.

The city bicycle program had begun in 1970 at the urging of a member of the city council and the mayor. The city manager responded by establishing a staff committee which he soon expanded to a staff-citizen committee. Their charge was to encourage bicycle use.

Potential ridership was thought to be high. There were an estimated 30,000 bicycles in the city. A newspaper questionnaire in the fall of 1970 drew 1,100 responses. Seventy-seven percent of the respondents requested bicycle lanes, paths and routes. Public hearings that first year produced similar requests for routes.

By this time, Davis, California had an extensive bike route system which Eugene studied. But Eugene is not a small university town with wide streets in a flat valley. It is Oregon's second largest city with (in 1980) 105,000 residents and a metropolitan area population of 190,000. The lumber industry is the community's economic base and log trucks rumble through the city on its older, narrow streets. Much of the residential area is on hilly terrain, the Willamette River bisects the city, and Oregon's rainy winters are legend.

There were positive factors as well. Eugene's city government was open and efficient, citizen participation was expected, and city policy endorsed compact land use. A major university provided potential riders, the climate was generally mild, and the banks of the Willamette River were largely undeveloped.

BEFORE THE OFFICIAL PLAN. Armed with a reasonable expectation of success and with that first valuable lesson, the Bicycle Committee, principally the citizen members, went to work. They cobbled together a plan by asking and answering three basic questions. Where do bicyclists ride now? Where would they be likely to ride if existing barriers were removed? Can these barriers be removed or overcome?

To answer the first question, the citizen members drew on their experience as commuter cyclists and on data gathered through questionnaires and public hearings. Also, at the traffic engineer's request, they made bicycle counts on twelve key streets. Barriers to bicycle travel were readily identified and included the Willamette River, railroad tracks, congested arterials and discontinuous streets; overcoming many of them appeared impossible. In spite of the obstacles, the committee set out to implement their plan.

Major implementation efforts in 1971 centered on a one-block gap in the street system near downtown Eugene. Both citizen comments and bicycle counts revealed the importance of this connector. Counts in 1971 revealed that the unofficial dirt and mud path was the route of choice for 1,000 cyclists a day, yet a proposed apartment building threatened to block the route. Negotiations for easements dragged on and the Bicycle Committee temporarily shifted its emphasis to other routes. Seven years later, the city obtained money and easements for this first segment and community development funds for path construction. By 1980, counts on this connector were as high as 3,600 cyclists a day.

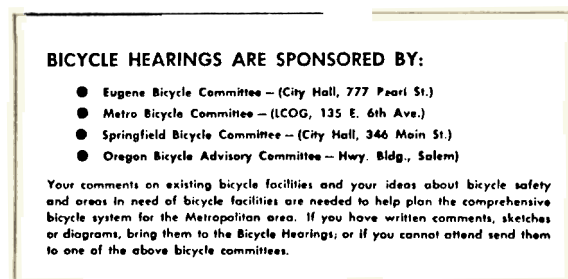
A second gap in the street system identified in the Committee's "working plan" had a better chance of immediate success. This time only funding, rather than easements and money, was a problem. A discontinuous system of residential streets discouraged residents of the married student housing complex from cycling to the university campus two and a half miles east, but gaps in the street system were in public ownership. Land adjacent to the county fairgrounds and along a drainage canal could accommodate a bike route. Bicycle Committee citizen members surveyed the potential users; then, armed with favorable data and with photographs, they went over the heads of reluctant staff members straight to the City Council in a special appeal, saying: "We have to start somewhere. Let's start here." The Council agreed and appropriated \$18,000 of city funds for this first bikeway project, a 10-foot wide, 3/4 miles long, asphalt path linking three discontinuous street sections.

Appreciative path users appeared immediately. At a booth at the county fair in 1972, the Bicycle Committee advertised the new route, solicited suggestions for improvement, and encouraged thank-you letters to the City Council and city staff.

PREPARING THE PLAN. By 1973 the city and county had built or committed themselves to sixteen miles of bikeways. The city traffic engineer, converted from skepticism to genuine interest, sensed that the temporary plan lacked the credibility and rigor that professionals can provide. He found funds from a federal highway safety program -- \$40,000 with an 80-20 federal-local match -- to hire a team of consultants to take a fresh look at Eugene's developing bikeway system. Three applicants were interviewed and the contract was awarded to DeLeuw, Cather & Company, the San Francisco engineering firm preparing the 1974 Federal Highway Administration study, Bikeways: State of the Art. (In 1979, those responsible for the Eugene plan formed DKS Associates, Oakland.)

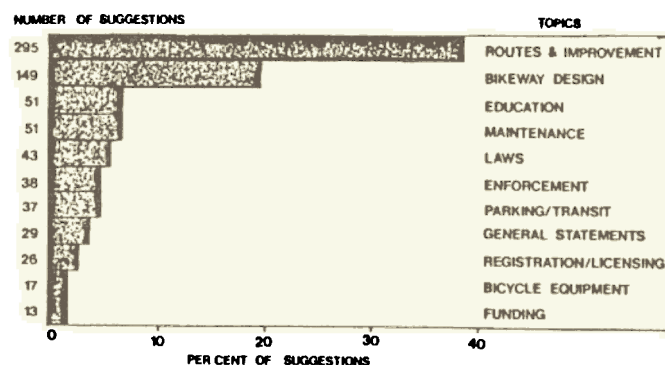
In the development of the Eugene Bikeways Master Plan, the consultants kept a bicycle in Eugene and personally bicycled many miles of existing and contemplated routes. They served as virtual adjunct members of the Eugene Bicycle Committee, attending the twice monthly meetings and receiving comments from local cyclists on a regular basis.

In May, toward the end of their field investigations, the consultants held a public hearing in conjunction with the state and local bicycle committees. The 10 a.m. to 10 p.m. hearing



50,000 meeting notices, printed on both sides of 3½" x 7" yellow cards, were mailed with monthly utility billings.

encouraged all sectors of the community to have their say. At the well-publicized event testimony was received from 121 persons, ranging from school children to senior citizens. Another 100 persons sent in written comments or placed entries in the suggestion box provided at the hearing. For most of the day, the audience consisted of 30 to 50 people and the discussion never lacked contributors. (A similar 12-hour hearing in 1979 helped evaluate the five year old program.)



Citizens emphasized bikeways at the May '73 public hearing.

The resultant Eugene Bikeways Master Plan appeared in late 1974. While the 11" by 17" document includes sections on cyclists' perceptions, accidents, design standards, education and enforcement, the principal section details the bikeway system. The plan proposes 120 routes covering some 150 miles.

PLAN ADOPTION AND IMPLEMENTATION. The City Council promptly adopted the plan in early 1975. The unanimous vote and the general acclaim that followed attested to the quality of the plan and to the interest generated by four years of successful bikeway beginnings. Also, during those four years, the citizen members of the Bicycle Committee had kept in touch with Council members by sending them progress reports, calling on them in person, offering them bicycle rides, and working for passage of the city budget.

The unanimous vote also showed the relative ease of plan adoption; harder votes concern implementation. For example, the first request to remove parking and provide bike lanes resulted in a tied Council vote; fortunately, the city attorney ruled in favor of bike lanes.

The city administration gave heavyweight backing to the newly adopted plan by appointing to the Bicycle Committee the directors of the city's planning, public works, parks, and traffic engineering departments. These directors continued on the Bicycle Committee for three years until the program was well established.

Plan adoption and heavyweight backing also meant an annual line item in the city's capital improvements budget of \$75,000 for bikeways. By 1981, 70 miles had been constructed, including 21 miles of independent paths, 34 miles of on-street lanes and 15 miles of signed routes.



THE EUGENE BIKEWAYS MASTER PLAN, not a dusty document on a back shelf, gets regular use and yearly update. By the end of 1981, the bikeway network included 21 miles of independent paths, 34 miles of striped lanes, and 15 miles of signed routes.

In 1975, the Metropolitan Bicycle Committee, with a citizen-staff composition similar to the Eugene committee, developed an area plan. Authored principally by two transportation planners, one from Lane Council of Governments (L-COG) and one from Lane County, the Metropolitan Bikeway Master Plan expands upon the Eugene Plan. Adopted by Eugene, Lane County, Springfield (the adjacent city of 35,000) and L-COG (the designated areawide planning agency), this plan helps prevent bikeways which terminate at jurisdictional boundaries. In 1978, this plan was incorporated into the area's long-range

transportation plan, signaling recognition that bicycles were an integral component of the transportation system. Bicycle policies and projects are helping the area reach its goal of accommodating 15% of the year-2000-trips by walking, bicycling and carpooling.

UPDATING THE PLAN. The vehicle for modification and update, recommended by the Master Plan itself, is the annual review.

The annual review commences in October when the bicycle coordinator solicits ideas from the city's eight official neighborhood groups and from the Bicycle Committee. Staff compiles a list of suggested changes; committee members inspect route proposals by bicycle. There is no substitute for this on-bicycle review. The bicycle coordinator shepherds the proposed amendments through the city's formal adoption process past the Planning Commission and the City Council. Updating the Plan is time consuming but fairly routine, with the fireworks saved for implementation of individual projects.

A new policy added to the Plan in 1981 states "Bicycle facilities shall be provided where applicable on all new or reconstructed arterials." This had been an important, informal policy for several years and its formal acceptance won Council support handily.

Most Plan revisions to date have added new routes to the original list of 120. Twelve were independent paths added when opportunities arose to use utility easements and drainage channels. Two more bicycle bridges over the Willamette River ride piggyback on new utility pipes. Other additions to the Plan include two highway overpasses, nine signed routes and a "desire line" connecting a developing residential area by an undetermined route and facility

Ten other amendments deal with route substitutions or deletions. Three routes specifying on-street lanes replace two independent paths and a sidewalk bikeway included in the original plan. In three other instances, the reverse is true. On-street lanes were dropped in favor of independent paths. Other amendments merely move lanes or routes to different streets than originally proposed. These deletions and substitutions show that route details must be altered in the light of experience, and that bikeway planning and design requires fine tuning.

EVALUATING THE PLAN. After five years of living with the Master Plan, the time was ripe for an objective analysis. Regional Consultants, Inc. of Corvallis, Oregon, prepared the evaluation with \$20,000 from the Oregon Traffic Safety Commission. The evaluators found that the fifty miles of bikeways already built were serving the community well. Sixty percent of the city's bicycle commuters used the completed routes for over one-half the length of their trips. Bicycle counts from 1978 indicated an average 76% increase over similar counts taken in 1971. Accident data revealed that sidewalk bikeways had higher accident rates than other types, and that on-street lanes tended to reduce accidents. Volume XII of this series reports more completely on usage and accidents.



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BICYCLES IN CITIES



Vol. III

BRIDGES FOR BICYCLES

 Three bicycle bridges now cross the green banks and eddying currents of the Willamette River where it cleaves the center of metropolitan Eugene, Oregon.

Over the years, the pleasures of the river have cost Eugeneans some inconvenience. Commuters between Eugene and its satellite communities have had to buck peak hour bridge bottlenecks. University of Oregon students have needed extra time to reach home football games in Autzen Stadium across the river from the main campus.

Until a combination of luck, pluck, and fast footwork won Eugene a trio of bicycle/foot bridges, there were only four routes across the river. All were unattractive to bicyclists. The Ferry Street Bridge had narrow travel lanes and skinny sidewalks only partially protected by railings from heavy auto traffic. Another bridge, with terrifyingly narrow approaches, was located far from central Eugene. The other two were freeway bridges.

THE AUTZEN BRIDGE. Bicyclists' hopes for a safe and pleasant way across the river were only a pipe dream until 1970. That year the dream was given unexpected solidity by a most unlikely benefactor: the City's publicly-owned purveyor of water and power. The Eugene Water and Electric Board (EWEB) was planning a conduit to carry steam across the river from a point near the University to a commercial greenhouse near Autzen Stadium. The river's hard rock bed and shallow water precluded a buried pipe. Sensing an unusual opportunity, EWEB offered to make the conduit passable for bicycles and foot traffic if the University and the County assumed the extra cost. The three jurisdictions reached agreement and Autzen Bridge was built.



Spanning the Willamette, Autzen Bridge for bicycle/foot traffic rides piggyback on a steam line.

THE GREENWAY BRIDGE. Completed in 1977, this bridge is the brightest jewel on the diadem of river paths because it was so long hoped for and seemed so impossible to attain. It connects a large residential area on the south bank of the river with Valley River Center, a big regional shopping center on the north bank.

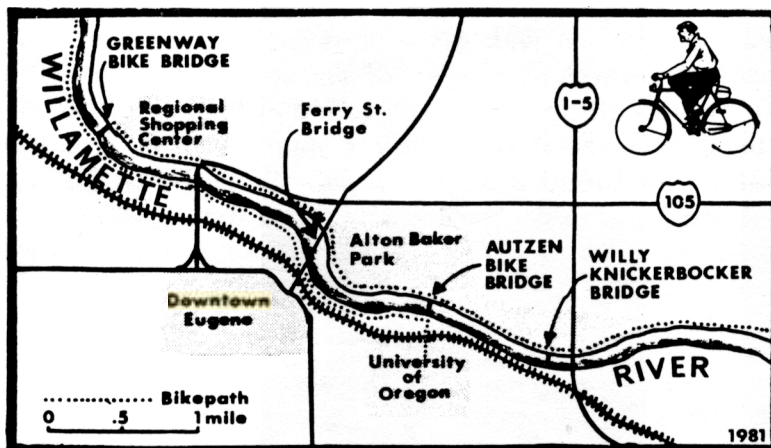
The idea for the Greenway Bridge and an awareness of its need were practically forced upon Eugene's bicycle planners by the public. A bridge to Valley River was the most frequent item in a suggestion box set up by the Bicycle Committee at the Lane County Fair in 1972 and 1973. The same theme was sounded during public hearings held to compile and refine data for the Eugene Bikeways Master Plan* in 1974. By this time, the Eugene Bicycle Committee**, an advisory group made up of citizens and city staff members, was fairly panting for a bridge to Valley River Center.

Given the chronic shortage of local funds, the bridge seemed destined never to be built. However, the impossible dream suddenly seemed possible when Oregon Senator Bob Packwood authored and ushered to its final passage a bill to fund the National Bikeway Demonstration Program. Eugene made its pitch for a grant. It lost, girded its loins, took a fresh swing, and got the money.

Eugene enjoys celebrating each new link in its bikeway system, and the Greenway Bridge dedication included speeches, a bike decorating contest, and a procession of the colors.

THE WILLIE KNICKERBOCKER BRIDGE. An unexpected opportunity for a third bridge was offered in 1979, once again by EWEB. This time a new water main was to cross the river a mile upstream from the Autzen Bridge, providing a potential crossing for travelers from the southeast margins of the City. The Bicycle Committee worked to guarantee state and

local funding of a piggyback arrangement similar to that used for the Autzen Bridge. The dedication in September 1979 of the Willie Knickerbocker Bridge, named after an early and colorful Eugene bicycle enthusiast, featured a brass band, decorated bicycles in parade, prizes, and free ice cream bars.



A fourth bridge, again a piggyback arrangement, is on the drawing boards for 1982. This bicycle/foot bridge will ride atop a new sewer

trunk line and new telephone cable to a burgeoning residential area. Already, the river bank trail reaches this fourth site one mile downriver from the Greenway Bridge.

The three bike bridges and the Ferry Street Bridge, now modified to better accommodate bicycles***, connect ten miles of asphalt trails along both river banks. The routes pass manicured lawns of city and county parks with picnickers and frisbeeists as well as natural sections of unkempt shrubbery whence darts the occasional squirrel or rabbit. From spring to autumn, the trailside displays a self-renewing tapestry of wild flowers with Scotch broom, blackberry blossoms, lupine, poppy and thistle producing a succession of gold, white, blue, orange, and blue again.

* Vol. II Eugene Bikeways Master Plan

** Vol. I Portrait of a Bicycle Committee

*** Vol. V Innovative Bikeway Designs



GREENWAY BIKE BRIDGE

FEBRUARY 25, 1978

DEDICATED TO THE BICYCLISTS,
PEDESTRIANS, AND JOGGERS
OF EUGENE

FUNDED BY CITY OF EUGENE AND
NATIONAL BIKEWAY DEMONSTRATION PROGRAM



Greenway Bike Bridge connects a large new regional shopping center to a residential area. It is rare to find the bridge empty of two legged or two wheeled traffic.


Senator Bob Packwood unveils the Greenway Bike Bridge plaque early in '78, while bagpiper, flagbearer, and bicyclists watch. Funds for the \$290,000 bridge were 80% federal and 20% city.

VITAL STATISTICS

| Facility | Length | Participating Agencies | Cost | Date of Completion |
|-----------------------------|-------------------|--|--|--------------------|
| Autzen Bridge | 667' (6 spans) | Eugene Water & Electric Board Lane County, University of Oregon | \$175,000 (includes steam line) | '70 |
| Greenway Bridge | 528' (4 spans) | Federal Highway Adm. 80% City of Eugene 20% | \$290,000 | '77 |
| Willie Knickerbocker Bridge | 523' (5 spans) | Eugene Water & Electric Board City of Eugene, Lane County, State Highway | \$330,000 (water conduit & bridge) \$110,000 (deck, rails & approaches) | '79 |

All three bridges are concrete, approximately 14' wide, and designed by OBEC Consulting Engineers, Eugene. In two of the bridges the piers are supported by spread concrete footings on solid rock and in the third by steel pilings. Steel and laminated wood railings edge the concrete decks.

The original purpose of the bridges across the Willamette was to put the City's half dozen commercial and residential areas within easy reach of bicyclists. The bridges have already surpassed casual estimates of their utility, but Eugeneans have also taken to them as a source of pleasure in themselves. Users include bicyclists headed for work or play, joggers, strollers, old couples walking arm in arm, and young couples walking hand in hand. Nor is all traffic in motion. There is almost always a solitary idler with elbows on the rail watching innertubers bouncing in the rapids below, or simply succumbing to the gentle hypnotic effect of the flowing water

In the city beyond the river, the old squabble for street space continues. Along the bank trails and on the bike bridges the sights and sounds of the river give a sense of well being. Pedalers and pacers crossing each others' paths swap a calm "Howdy" or "Have a nice day." Their easy co-existence on the bridges proves what bicyclists have been saying all along: what is good for bicycles can be good for everybody. 



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BICYCLES IN CITIES



Vol. IV

RIVER BANK TRAIL SYSTEM

 In the center of metropolitan Eugene, Oregon bicyclists, pedestrians, and joggers use ten miles of paths along the Willamette River. All the paths, except one mile in the city's oldest park, were built between 1971 and 1981.

The river bank trails serve both recreational and utilitarian purposes. A survey of bicyclists in 1978 found forty percent of them on commuter or shopping trips. River bank commuter cyclists often have a faster trip than can be achieved by car.

The idea of a trail system along the Willamette River seemed preposterous ten years ago. On the south bank, the main line of the Southern Pacific Railroad caused access problems. On the north bank, the race for development had begun; land previously subject to flooding was now protected due to completion of upstream dams.

Development of the north bank has now taken place; a regional shopping center, office buildings, inns and restaurants crowd the river bank. But the trail is there, too. Upstream is a new 375 acre metropolitan park. On the south bank, two railroad underpasses connect the trails to the city streets. New housing lines sections of both river banks.



How did this trail system come into being?

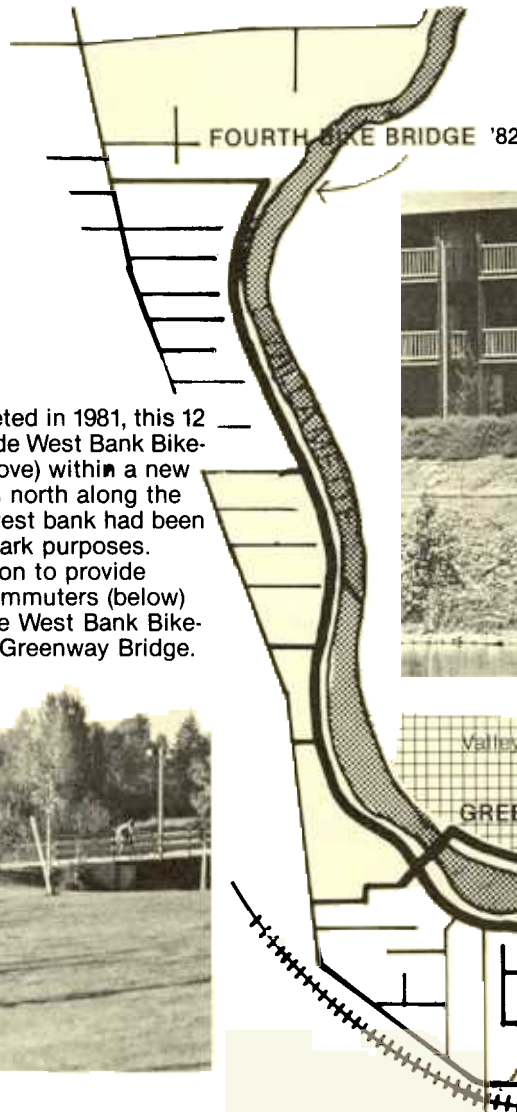
Passage of Oregon's "Bicycle Bill" in 1971 by the state legislature was a major factor since it established an important source of funding. This law requires cities, counties, and the state to spend one percent of state gas tax receipts for bicycle and foot paths. With passage of the bill, one million dollars became available annually for bicycle/pedestrian paths.

Another factor was a strong local interest in parks. In the sixties and early seventies, public officials and private citizens won approval for park acquisition to form the large linear park on the north bank and smaller park additions on the south and west banks. *(text continued on back page)*

No room by the Inn. Motel construction in 1973 crowds the trail into the river. River bank fill and rip-rapping (protection with rocks) provided additional public right-of-way for the path. The \$40,000 spent for this fill illustrates the major investment sometimes required to prevent trail blockages.



WEST BANK Completed in 1981, this 12 foot wide West Bank Bikeway changes from a concrete surface (above) within a new city park to asphalt as the path continues north along the river past residential areas. Much of the west bank had been gradually acquired by the city for future park purposes. However, one parcel required condemnation to provide continuous public right-of-way. Bicycle commuters (below) head home in several directions where the West Bank Bikeway meets the South Bank Trail near the Greenway Bridge.



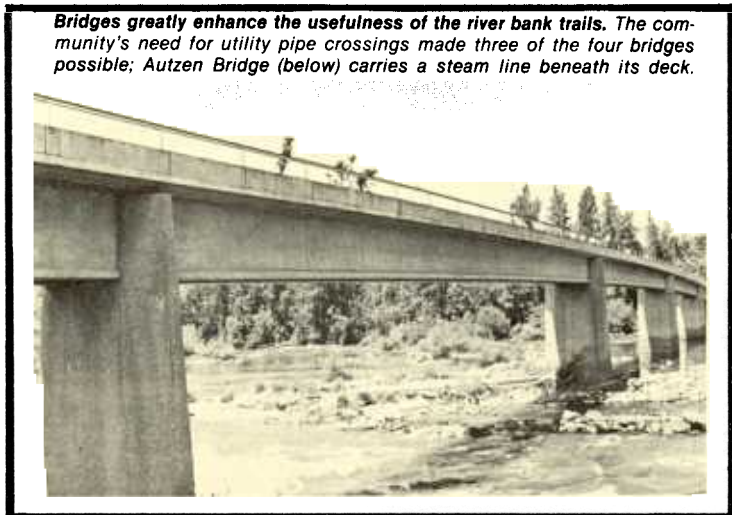
NORTH BANK that solved the problem shown on page 10 of River Shopping Center and across the city squeeze made fill and rip-rap necessary here. State "Bicycle Bill" funding paid for the Interstate 105 right-of-way (see map).



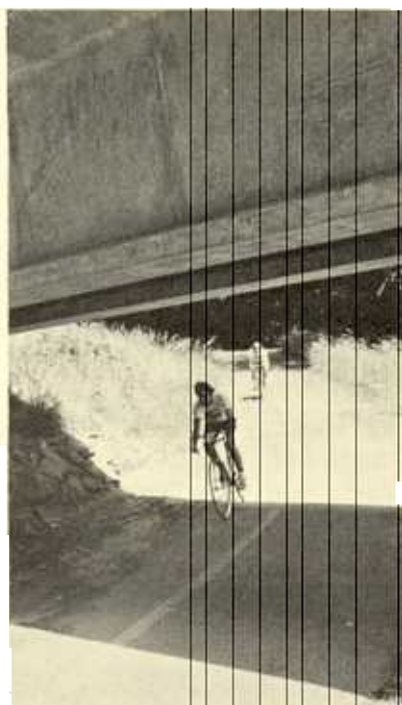
SOUTH BANK Passing beneath the Interstate 105 Bridge (below left), the bikeway travels through the city's oldest park, Skinner Butte, and the city rose garden. City ownership made path easements easier to obtain, and designation as a National Trail helped in obtaining Bureau of Outdoor Recreation funds for construction. Further east, the municipal power plant hugs the river presenting a possible barrier. The solution (below center) is an eight-foot chain link fence protecting the plant yard and an agreement with the utility allowing relocation but not removal of the trail.



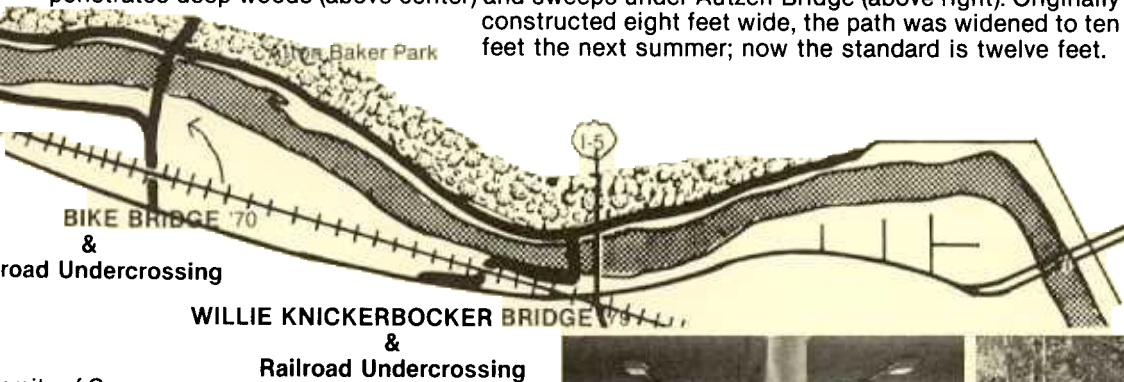
cyclists squeeze between the Valley River Inn and the Mettette River (below left) making use of the rip-rapped fill. Upstream, signs guide cyclists (below center) to Valley's principal car bridge to Downtown. Another tight squeeze (below right). Note the fence which serves as a guard rail is part of the North Bank Trail since most of it is in



Bridges greatly enhance the usefulness of the river bank trails. The community's need for utility pipe crossings made three of the four bridges possible; Autzen Bridge (below) carries a steam line beneath its deck.



Lane County constructed its first two miles of river bank path in 1971 in Alton Baker Park responding to the State "Bicycle Bill" which mandates 1% of gas tax receipts for bike paths. Part of the path borders the river (above left) on a reclaimed sanitary landfill. Another section penetrates deep woods (above center) and sweeps under Autzen Bridge (above right). Originally constructed eight feet wide, the path was widened to ten feet the next summer; now the standard is twelve feet.



University of Oregon

Railroad undercrossing (left) provides small but vital link from university to south bank trail and Autzen Bridge (showing in background). Trail (far right) from Willie Knickerbocker Bridge skirts river and turns into second railroad undercrossing (right). This tunnel, once a millrace culvert, shows adaptation for bikeway use of an existing but long-abandoned structure.



A third factor was a state law encouraging a "Willamette River Greenway". Until a successful clean-up in the sixties made it attractive, Oregonians had turned their backs on the polluted river. The Greenway concept did not win support in all the towns and cities along the river, but in Eugene the idea of green banks midst urban asphalt caught on; the state legislation helped with land acquisition, easements, and condemnation.

A fourth factor was the city's bicycle program. The adopted bikeway plan recognized the river banks as the potential spine in the city's transportation system for cyclists. Citizen and staff members of the Bicycle Committee, and increasingly other city staff as well, began to scrutinize riverbank development carefully, ensuring that easements would be there for future development of a river bank path. Attention to detail by all segments of city government has helped avoid a repeat of the 1973 problem where the siting of the Valley River Inn left too little room for the trail and caused the expenditure of extra funds for fill and rip-rap.

Finally, there are increasing numbers of path users. As each new section of the system is completed, it attracts new users who also utilize the rest of the trail system. Completed in 1978, the Greenway Bridge accommodated an average of 300 cyclists per day during the first year. Three years later the completion of the West Bank Bikeway, which connects with the Greenway Bridge, helped account for a tripling of bridge use to an average of 950 cyclists a day in the fall of 1981.

DESIGN STANDARDS. Width: The first path, built in 1971, was 8 feet wide and was widened to ten feet the next year. Now river bank paths are constructed 12 feet wide. Fences, guardrails and other barriers are set back so the entire width is useable. Joint use by bicyclists, joggers and pedestrians dictates a 12 foot width. Striping: White edge striping improves visibility on both lighted and unlighted sections of paths. Center line stripes are used for curves. Surface: The first paths were constructed of asphalt, still the material of choice in most locations. However, in areas of heavy park use, or sections traversed by heavy maintenance equipment, reinforced concrete is preferred.

FUTURE DEVELOPMENT. Planned condominium and apartment developments along the east bank of the river will place more potential users close by. These developments are required to provide access and river bank easements and construct sections of the river bank system, just as they are required to provide streets and other public facilities. 🚲

1970-1981 Funding for Willamette River Bank Trail System, Eugene, Oregon

| | Local | | State | Federal | TOTALS |
|---|------------------|-----------|--------------------------|--|-------------|
| | City | County | (Gas tax-"Bicycle Bill") | | |
| Paths — 10 miles | \$182,000 | \$143,000 | \$365,000 | \$73,000 (Bureau of Outdoor Recreation) | \$763,000 |
| Bridges — 3 bicycle/foot* 1 car bridge improved for bicycles | \$133,000 | \$86,000 | \$ 92,500 | \$270,000 (Federal Highway Adm.) | \$581,500 |
| Railroad underpasses — 2 | \$ 47,000 | \$ 10,000 | \$ 72,000 | — | \$129,000 |
| TOTALS | \$601,000 41% | | \$529,500 36% | \$343,000 23% | \$1,473,500 |

*Two of these bicycle/foot bridges ride piggyback on utility pipes built above the river rather than under the river by the city's publicly-owned water and electric company. This table includes the cost of converting the pipe bridges to bike bridges.

BICYCLES IN CITIES THE EUGENE EXPERIENCE

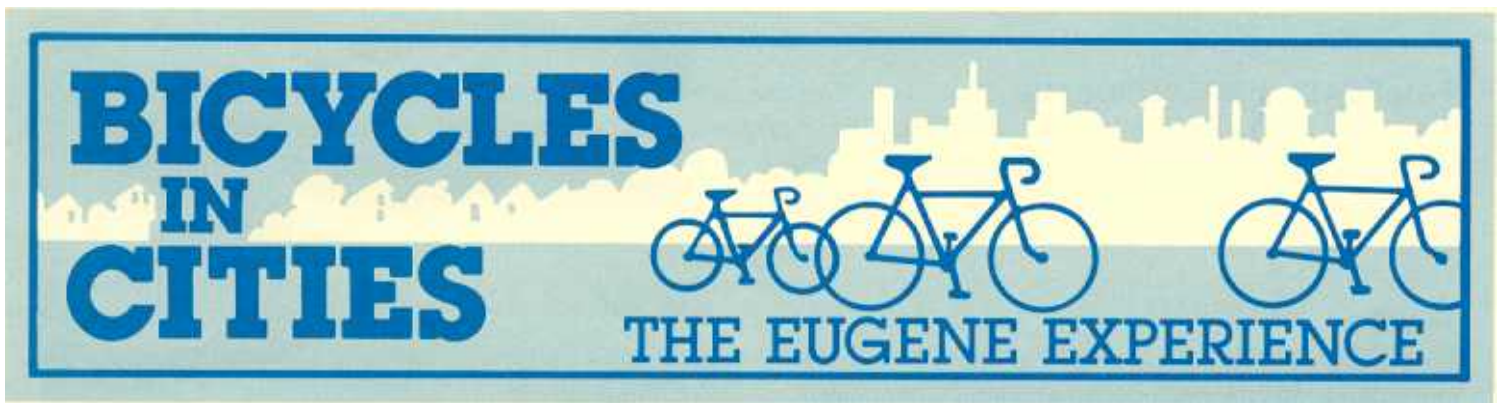
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Vol. V

INNOVATIVE BIKEWAY DESIGNS

 How can bicycle commuting be encouraged? Eugene found innovative bikeway design to be one important answer.

Usually, bicyclists simply use the same street system as cars. With some attention to riding skills and traffic laws, bikes and cars co-exist reasonably well on most city streets. Eugene's experience, however, indicates that before bicycle use will flourish, especially commuter use, some bikeways are needed.

Eugene identified corridors where the high bike/car conflict discouraged cycling; well-designed bikeways reduced this conflict. In other places, bicycle barriers actually prevented commuting; innovative engineering overcame many of these barriers.

Other volumes in this series describe major segments of Eugene's bikeway system; this volume deals with more specific design details. Eugene borrowed many of its bikeway designs from other cities though some designs were pioneered here. Several of these are now used elsewhere while others are still unique to Eugene.

SEMI-DIVERTERS. Most bikeways are classified as separate paths, striped lanes or signed routes. Several of Eugene's signed routes have separate path characteristics created by the use of semi-diverters on narrow streets. When the City first proposed striped bike lanes and parking removal for one of these streets, the City's official neighborhood group countered with a proposal of its own: leave parking, but install diverters to channel car traffic to a parallel arterial street. A trial period won the case for permanent diverters. The neighborhood street became, essentially, a "bicycle street" and now has more bicycle traffic than the intersecting streets have car traffic. Relocated stop signs now give priority to the higher-volume "bicycle street".



Semi-diverters on 24-foot-wide city street create feeling of separate bicycle path.

Parking, permitted on one side, serves local residents.



Diverters limit, but do not prevent, car traffic.

RAILROAD UNDERCROSSINGS. The Southern Pacific Railroad parallels the Willamette River in metropolitan Eugene. Both bisect the City and could be barriers to bicycle travel. However, new bicycle bridges cross the river, and two new railroad underpasses permit bicyclists to reach the bridges and the river bank trail system. Local and state bikeway monies funded both undercrossings. The railroad company designed the first undercrossing completed in 1972. The second, designed and built by the City in 1980, shows adaptation for bikeway use of an existing but long-abandoned millrace culvert.



Railroad underpass, completed just in time for Olympic Trial Marathon in 1972, provided access to river bank trails.



Innovative design turns abandoned culverts into efficient **bike tunnels** beneath the railroad.

FERRY STREET BRIDGE ADAPTATION. Eugene's oldest and most heavily-used bridge (average daily traffic 50,000) attracts bicycles because of its strategic location. Bicycle adaptations completed in 1976 have reduced the hazards to bicyclists and increased bike use. These adaptations include: widened sidewalks, concrete barriers and railings protecting sidewalk users from cars, and a ramp linking the bridge sidewalk directly to the river bank trail.



Heavy railing now protects bicycles from cars on City's busiest bridge. Widened sidewalk connects with new ramp.



Ramp carries cyclist from bridge to riverbank trail.

STREET AND INTERSECTION WIDENING. Designing bike lanes for narrow streets is a challenge; intersections can seem hopeless. Junior high students who asked the Eugene City Council in 1971 for bike lanes to their school were college graduates before the lanes were completed in 1980. The bike lanes on this collector street serve not only the junior high school but also one block of small businesses, a major city park, many homes, and a grade school. Average daily traffic (ADT) is 7300. Providing continuous bike lanes on both sides of the street meant removing parking on one side for the entire length of the street as well as narrowing car travel lanes. The project also required three blocks of

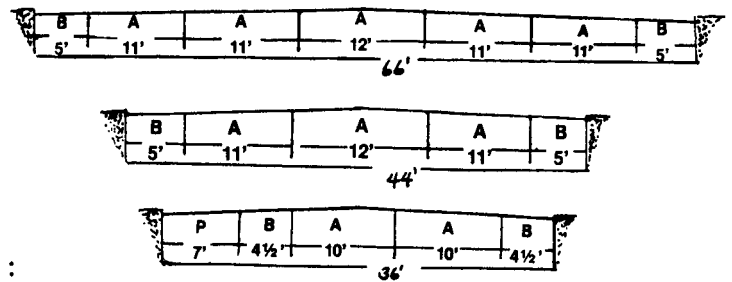
expensive street widening to provide on-street parking for small businesses. The result is a well-designed, well-used facility which satisfies neighborhood concerns.



Parking bays at corner grocery replace parking space taken for bike lanes.

Expensive street widening makes room for car parking as well as bike lanes at a critical school and business corner (left).

LANE WIDTHS. To provide space for bike lanes on some busy arterials, Eugene has narrowed car travel lanes to 11 feet and turn lanes to 12 feet. On some collector streets car travel lanes have been narrowed to 10 feet. Parking lanes and bike lanes may also be narrowed if parking turnover is low and traffic volumes are under 7000. Typical street cross-sections are:



4 1/2-FOOT-WIDE GUTTERS. Instead of the usual 1 foot concrete gutter, Eugene now builds them 4 1/2 feet wide. The wide gutter provides smoother, more useable space for bicyclists since the longitudinal joint between roadway and gutter is moved from the cyclist's normal area of use. Other advantages are a natural bike/car separation provided by contrasting light concrete with dark asphalt, and no increase in cost if the street width is the same. By 1981, 13 miles of city street had 4 1/2-foot wide gutters.

CURB INLETS AND DRAINAGE GRATES. Curb inlets, required in Eugene for all new street construction, gather the water under the curb line without disturbing the surface of the gutter. Bike-proof drainage grates now replace the old "rim benders" yet have almost the same water acceptance capacity. These are used in curb-side bike lanes, other streets with high bicycle use, and in all new or reconstructed streets which cannot use curb inlets.



Wide, concrete gutters make a smooth, unbroken riding surface (above and center).



Curb inlets drain away surface water and replace bike-eating metal grates.



Cross pieces welded to old-style drainage grates prevent bicycle wheels from slipping through.

EASEMENTS. Several critical links in Eugene's bikeway system are less than a block long. In several cases these segments were constructed on special easements. One such easement through the yard of the municipal power plant ties the river bank trail to the city street system. The easement is guaranteed, but the location of the path may be altered by the utility. Another important easement links two sections of discontinuous city street in downtown Eugene and completes one of the City's most heavily-used bikeways. The route passes between a church and a furniture store and restaurant. Negotiations to obtain an easement lasted seven years.

The easement for one short section of river bank trail resulted from a swap: a small triangle of state highway property in exchange for the needed private parcel. Another river bank section required condemnation. Most bikeway easements are granted after patient negotiation. Often a compromise includes special fencing or slight route alterations.



Easement through power-plant yard ties river bank trail to city street system.

ZERO-LIP DRIVEWAYS. Some driveways have a one-inch or even two-inch lip or joint between the street and driveway surfaces. Lips this size can bend a bicycle wheel or cause a spill. Since 1976, Eugene has required driveway lips of less than 1/2 inch. However, construction habits prove hard to change; sometimes the contractor is required to redo or grind down a newly-poured driveway lip to satisfy city specifications.




Easement links discontinuous streets in downtown Eugene.

Note zero-lip driveways in all three photos.

ENTRANCE TREATMENTS. Off-street paths tempt car drivers. To discourage this illegal use, posts can be placed at path entrances and made removable to accommodate maintenance vehicles. However, posts can be a hazard to cyclists, particularly where night lighting is minimal. An alternative is a dual entrance-exit ramp. The two ramps are placed far enough apart that a car cannot straddle them. White edge striping defines the split in the path.

Entrance treatments discourage illegal car use: posts (above and center), and dual ramps (below).



Originality in bikeway design can overcome barriers to bicycle travel and help cars and bicycles share busy streets with less conflict. 

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BICYCLES IN CITIES



Vol. VI

ON-STREET BICYCLE LANES

 Bicycle lanes form the mainstay of Eugene's commuter system. These striped lanes on selected arterial and collector streets are often the only practical way to provide some protection and encouragement for cyclists. All bike lanes are one-way.

By 1982, Eugene had obtained space for striped bike lanes in these ways: removing car parking (7.5 miles); including sufficient width for bike lanes when building new streets or reconstructing streets and intersections (20 miles); narrowing car lanes (9 miles); and even eliminating a car lane (0.5 miles). Bike lane widths usually are 5 feet but may be as wide as 6 feet or as narrow as 4 1/2 feet.

The decision to place a stripe on a given street is based on evidence of existing high bike/car conflict and on the lack of an acceptable, alternate bike route. Eugene has no law requiring cyclists to use the lanes when provided; however, most cyclists do so because the lanes are well-placed.

Striping lowered accident rates in Eugene. Accident data gathered before and after five years of bikeway operation showed that streets with striped lanes had lower accident rates than before. The lanes remind motorists that cyclists might be present, thus making drivers more cautious when turning across the bike lanes. The lanes also provide more predictable movements by both cyclists and motorists.

STRIPING PATTERNS. Eugene stripes its bicycle lanes with a solid, white, 8-inch-wide stripe between the bike and car lanes. Approaching an intersection, the stripe is dashed



Symbols, not words, mark bike lanes. Eugene uses this design from Holland.



Bicycle symbols, directional arrows, and wide stripes claim the space. The stripe is dashed through the intersection.

to caution the cyclist and the motorist of the increasing risk of turning movements. When the bike lane is moved out from the curb to allow space for parking, an additional stripe may be needed (*below left*). This narrower 4-inch stripe is added when parking is so light that drivers mistake this space for another car lane. When parking is heavy and parking spaces are designated with a "t", this supplemental stripe is not needed (*below right*).



TURN LANES. Turn lanes make difficult design problems for bikeway engineers. The space required for a turn lane or turn pocket may consume the bike lane space. If this happens, the bike lane is usually discontinued in advance of the turn lane and a sign placed saying "Bikes Merge" (*below left*).

Sometimes, the space for both a right-turn-only lane and a bike lane comes from dropping the parking lane. At other times, widening the intersection provides the room. In these instances the right-turn-only lane is placed to the right of the bike lane (*below right*). This striping configuration encourages the turning motorist and the through bicyclist to cross paths in advance of, rather than in the immediate vicinity of, the intersection.

Eugene dashes the 8-inch-wide line through the intersections. The line is also dashed, rather than dropped, when bike lanes approach right-turn-only lanes (*see front page, right*). This encourages motorists to use caution when making their weave across the bike lane.



LEFT SIDE BIKE LANES ON ONE-WAY STREETS. Two one-way streets striped for bike lanes in downtown Eugene serve as principal north-south commuter routes for both bicycles and cars. Average daily traffic (ADT) is 8000 on one and 10,000 on the other. Heavy right-turn movements on the streets threatened the usefulness of the needed bike lanes. Placing the bike lanes on the left side of the street instead of the usual right side solved the problem; bicyclists avoid conflicts with double right-turn lanes, bus stops, and also heavy right-turn movements into mid-block parking lots. These left side lanes have

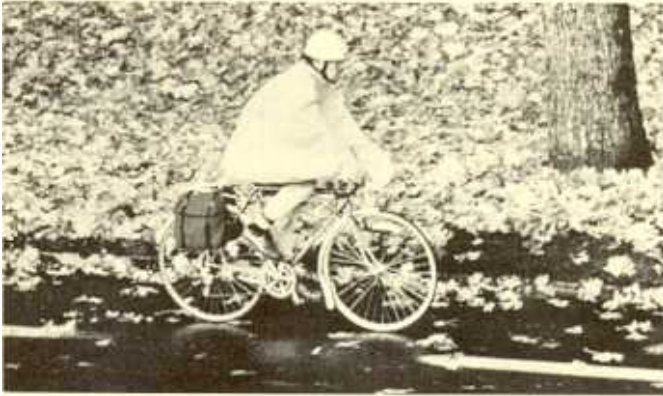
been well received. Directional arrows in the lanes, police warnings and citations, and peer pressure all emphasize the proper riding direction.

Once out of the congested downtown area, both streets have transition blocks to transfer the bike lane to the right side of the street. This is accomplished with a block that has bike lanes on both sides. Bicyclists merge across two high-volume automobile lanes (8000 ADT) to get into the bike lane on the right-hand side. These transition blocks are virtually accident-free.

Unusual left-side bike lanes on one-way couplet.

Commuter to downtown Eugene rides left-side north to work.

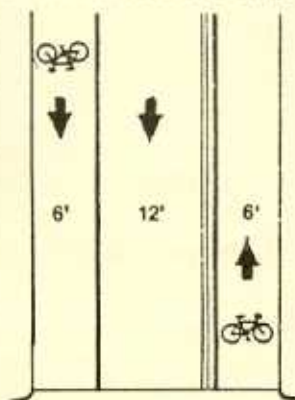
Homebound commuters ride left-side south on adjoining street.



ONE-WAY AUTOS AND TWO-WAY BIKES. Eugene has many one way streets. Two particularly narrow ones near the University of Oregon have a high demand for two-way bike travel. In the early seventies, when the streets still carried two-way automobile traffic as well as bicyclists, the bike/car conflict was very high. Widening the 24-foot-wide street would have meant losing the trees that border the campus. Tempers flared giving the traffic engineer gray hairs.

The solution originated with the consultants who developed the Eugene Bikeway Master Plan: place a one-way, 12-foot-wide car lane in the middle of the street, thus allowing a 6-foot bike lane on each side (below left, center). The bike lane in the direction of traffic is striped with Eugene's customary 8-inch-wide white stripe. The contra-flow bike lane on the opposite side of the street has this 8-inch stripe plus a double yellow stripe. Each intersection and major driveway has a sign cautioning motorists that the street has two-way bike traffic in addition to one-way automobile traffic (below right).

While this treatment cannot be recommended in all such cases, it solved a particular problem in the University area where streets were narrow and bicycle volumes great.



NEW BUT NARROW STREETS. Due to limited right-of-way, four recently reconstructed collector streets in Eugene are only 28 feet wide. These narrow streets, each with an ADT less than 6500, are striped with two 9 1/2-foot car lanes and two 4 1/2-foot bike lanes (right). When constructed with wide concrete gutters for the bike lanes, the streets have a pleasing appearance and work well. The narrower car lanes tend to reduce vehicle speed.



4 1/2' bike lanes, 9 1/2' car lanes

REMOVING CAR PARKING. On most new arterial streets parking is prohibited. City policy specifically states that collector and arterial streets are for the movement of traffic rather than the storage of vehicles. However, on Eugene's older and often narrow streets, gaining space for bike lanes meant displacing accustomed parking lanes. Six of Eugene's most used on-street bike lanes occupy former car parking space.

The Bicycle Committee had difficulty winning City Council support for the first proposal to remove parking for bike lanes. Subsequent votes have been easier to win due to the success of that first project.

A recent restriping effort on a major east-west arterial (15,000 ADT) again met initial opposition but won eventual support. This project also proved successful and included new turn lanes, parking removal, and bike lanes. Results a year later: less car congestion, lower bicycle accident rate, and more bicycle use.



Winning support for parking removal. Traffic engineer explains bike needs to City Council.

NARROWING CAR LANES. On some older streets, Eugene found space for bike lanes by narrowing travel lanes. One 36-foot wide collector street was restriped with 10-foot instead of 11-foot car lanes and with parking permitted on one side only. This made room for a 4 1/2-foot bike lane on each side (right). Since parking turnover is low on this street and the average daily traffic is under 7000, these widths work well. Higher traffic volumes require wider lanes.



4 1/2' bike lanes, 10' car lanes, 7' parking lane

Eugene's system of well-placed, on-street bicycle lanes provides a continuous reminder that the City welcomes bicyclists. 

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Vol. VII

INTERSECTIONS AND BIKE LANES

 What happens to bicycles at intersections?

Accidents increase and bikeway design problems multiply. Problems at intersections deserve the attention of any city seeking to encourage bicycle use and reduce bike/car conflict. With carefully designed intersections, the behavior of cyclists and motorists becomes more predictable and therefore safer.

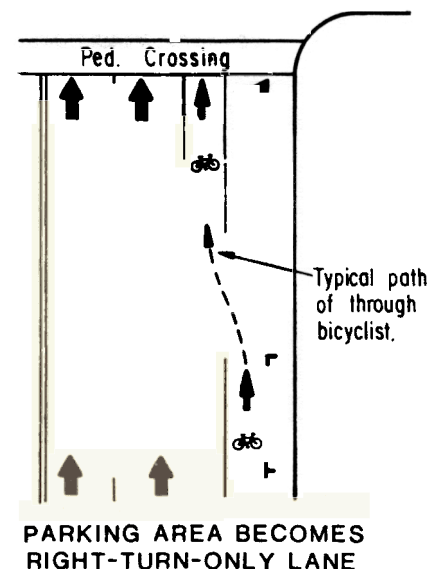
Of course, most Eugene streets provide no special treatment for cyclists. Bicyclists are expected to follow general traffic patterns. However, selected arterial and collector streets feature striped bike lanes offering some protection and encouragement for cyclists. On these streets, intersection design is of critical importance.

Eugene uses two basic designs for bike lanes at intersections. One locates the bike lane at the curb. The other moves the bike lane inward to allow for a vehicle turn-only lane at the curb. Special intersections may require design variations. Traffic volumes, turning movements, street widths, and right-of-way availability all impact design choice.

INTERSECTIONS WITH RIGHT-TURN LANES AND BIKE LANES. On some bike lane streets, high traffic volumes warrant separate vehicle turn-only lanes. At these intersections, Eugene prefers to place the turn lane, not the bike lane, adjacent to the curb. A parking lane often becomes a right turn-only lane at busy intersections and the bike lane moves inward (*below*). With this design, the through-riding bicyclist and the turning vehicle cross paths in advance of the intersection.



Eugene moves bike lane inward and places right-turn lane at curb.





Bike lane continues straight on one-way street when parking lane becomes left-turn only lane.



Right-turn bay at widened intersection. Motorist and bicyclist cross paths in advance of intersection.

To avoid bus stops and double right-turn lanes, some one-way streets in downtown Eugene place the bike lane on the left side of the street*. In these instances, the parking lane becomes a left-turn-only lane (**upper left**). On other bike lane streets where parking is prohibited, right-turn bays provide for heavy turn volumes (**upper right**). Again, the bike lane continues straight and the turning traffic merges across the bike lane to enter the exclusive turn lane.

INTERSECTIONS WITH CURB-SIDE BIKE LANES. Most bike lanes in Eugene are curb-side lanes (**below**). Typically, on these streets, there is more through traffic than turning traffic. The bike lane stripe, solid and 8 inches wide, continues as a dashed line through the intersection. The dashes are 5 feet long separated by 8 foot spaces. They begin 50 feet before the intersection and continue for 50 feet beyond.

While both motorists and bicyclists must learn to be wary of each other on these bike lane streets, the predictable location of each seems to help. The presence of large numbers of cyclists increases motorists' awareness and caution at intersections. Cyclists needing to merge across traffic to the opposite side for a turn, often begin their move a block before the intersection. Occasionally, less confident cyclists can be seen making two-legged "pedestrian turns."



At intersection of a collector and an arterial street (average daily traffic, 21,000), a Junior High School and retail shops attract bicyclists. Special widening and parking removal on the collector street made space for curb-side bike lanes.*

By narrowing car travel lanes Eugene provided space for bike lanes on this arterial (ADT, 48,000). **Dashed line separates bicycle commuters** at turn-off to Interstate 5. Ramped sidewalks are available here but most bicyclists prefer street.

Rarely does the City terminate a bike lane before a major intersection and ask the cyclist to merge with traffic. To avoid this, intersection widening projects, primarily for the

*Vol. VI: On-Street Bicycle Lanes

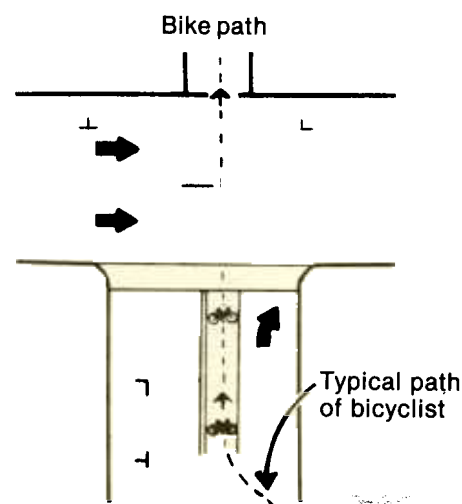
**Vol. V: Innovative Bikeway Designs

addition of left-turn lanes, also add width for a lane for cyclists through some collector and arterial intersections (below).

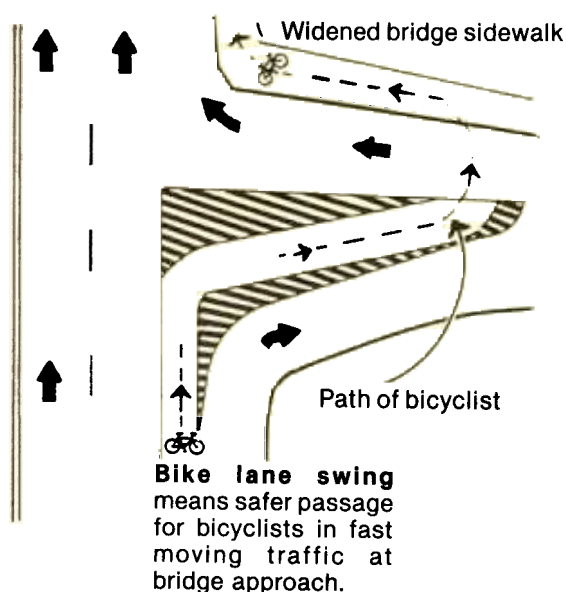


Busy arterial intersection (ADT 34,000) was recently widened to 66 feet to provide needed center-turn lane plus bike lanes on 4½-foot-wide concrete gutters.**

VARIATIONS. Some bikeway intersections require special solutions for particular problems. Streets signed as bike routes usually do not have pavement markings, but on one signed bike route the City recently stenciled a vehicle right-turn pocket and a through bike lane at a "T" intersection (right). Before this delineation, conflict occurred between motorists who can only turn right and bicyclists who proceed straight through to a heavily-used independent path. A Bicycle Committee member who commutes regularly through this intersection suggested the solution.



"T" intersection pavement markings separate through-bicyclists and right-turning motorists.



Cyclists commuting to downtown from north of the river face a particularly hazardous intersection on the arterial approach to the City's principal auto bridge. Heavy volumes of traffic from the right merge with fast traffic headed for the bridge. A previous bike lane solution which directed bicycles straight to the bridge sidewalk proved too dangerous. The bike lane now swings toward and across this merging traffic in advance of the area of merge (left). This solution, in place for five years, is accepted and gets heavy bike use.

A bicycle lane variation in downtown Eugene came about when some merchants on each side of a two-way street opposed parking removal. The City's resourceful traffic engineer proposed parking removal from one side along some blocks and the opposite side along others. This retained the most important business parking yet made room for bike lanes along the entire route. The slight weave for bike lanes and vehicle lanes as parking changes from one side of the street to the other is barely perceptible. It causes no intersection problems.

**Vol. V: Innovative Bikeway Designs

EXCEPTIONS. Design solutions for Eugene's growing bicycle traffic have meant exceptions to firmly held bikeway design principles.

Principle: Bicycle lanes should carry traffic in the same direction as adjacent motor vehicle traffic. **Exception:** Two narrow streets adjacent to the University campus are designed for one-way auto traffic and two-way bike traffic. For seven blocks, an auto travel lane is in the center of the street with a one-way bike lane on each side*.

Principle: Bicycle lanes between a curb and parking lane should be avoided. **Exception:** For one block near the University of Oregon, a one-way bike lane between the curb and the parking lane has worked well for eight years (*below left*). It is wider than normal and separated from the parking lane by another curb on which parking meters are installed.




Exceptional bike lane between curb and parking lane solves traffic flow for one business block near University. The next block features an exceptional contra-flow bike lane.*



Sidewalk ramps may help cyclists "cut the corner" when turning traffic is heavy.

Principle: Never sign sidewalks as bike routes. **Exception:** When streets with bike lanes have sharp turns, motorists tend to infringe on the bike lane. Ramps at corners give cyclists a sidewalk option if traffic is heavy (*upper right*). Most choose to remain in the street.

Principle: On-street bike lanes should be one-way. Local experience emphasized this principle when serious accidents occurred on a two-way facility squeezed between a curb and parking area within the University. **Exception:** The City has recently constructed a two-way lane on one side of an overpass linking a residential area with a regional shopping center. Major signalized intersections with multiple turn lanes dictated special treatment. City engineers and the Bicycle Committee chose a two-way bicycle lane, separated from vehicles by a concrete barrier, after observing cyclists' behavior and failing to develop a better alternative.

Cities should strive for consistency when designing on-street lanes. However, Eugene's experience indicates that special solutions may be required for particular intersection problems. 

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BICYCLES IN CITIES



Vol. VIII

BICYCLE PARKING

 Streets are only half the urban automobile equation; parking is the other half. Eugene has found that this is also true of its bicycle network.

But can't riders just lean their bicycles against the nearest fence, railing, building or tree? The urban cyclist who uses the bicycle for transportation is often forced to do these things, but they are far from ideal. Even assuming that a city is willing to put up with the clutter and unsightliness of helter-skelter bicycle parking, it is clear that this approach will keep many people off their bicycles and is not a good practice for cities trying to encourage cycling.

Bicycles have characteristics that require well-thought-out parking facilities. They are easy to steal, are a nuisance for pedestrians when parked around building entrances, and are singularly uncomfortable to ride after sitting in the rain or snow. The perfect bicycle parking facility continues to elude designers. Ask a group of ten Eugene cyclists which of the City's facilities they prefer and you will get ten different answers. Each cyclist's priorities are slightly different.

LOCATION. One aspect of bicycling most valued by cyclists is its ability to get them close to their destinations. So, the first step is to identify cyclists' destinations. Eugene officials and businesses have simply observed the places where bicycles cluster -- the hospital, the library, a downtown shopping mall, city and county offices -- and provided parking in these places.



County Office Building and City Hall attract bicycles. The County facility (left) was designed as part of the building it serves; the free-standing City design (right) occupies two car-parking spaces.

SECURITY. Racks in out-of-the-way places such as rarely-used alleys don't get used. It is an old cycling proverb that the best lock is your eye. While not foregoing locks, cyclists like to reinforce them by leaving the bicycle in a well-travelled location where a thief at work would likely be observed.

PROTECTION FROM WEATHER. Particularly in a rainy climate like Eugene's, weather protection ranks high on the list of desirable characteristics. This can be accomplished in several ways. Some bicycle parking structures in Eugene have been designed with their own cover to keep bicycles out of the rain. Both public and private businesses have had success putting parking under existing building overhangs.

THE IDEAL BICYCLE PARKING STRUCTURE. Bicycle parking facilities should be inexpensive, easy to use, esthetically pleasing, be easily maintained and resistant to vandalism, provide protection from weather and a means for locking bicycles securely. Each rack design is strong in some of these areas and weak in others; each city has to make its own choices from among the commercial racks available or design its own. Eugene has followed both routes; the winning rack in a city design competition features a curved fiberglass roof and handlebar hangers (see photos, pages 1 and 3). A city staff member refined this design which gets high marks under most of these criteria, especially weather protection and ease of use, but locking the rear wheel is difficult. The roof dimensions are the same as a single automobile parking space.



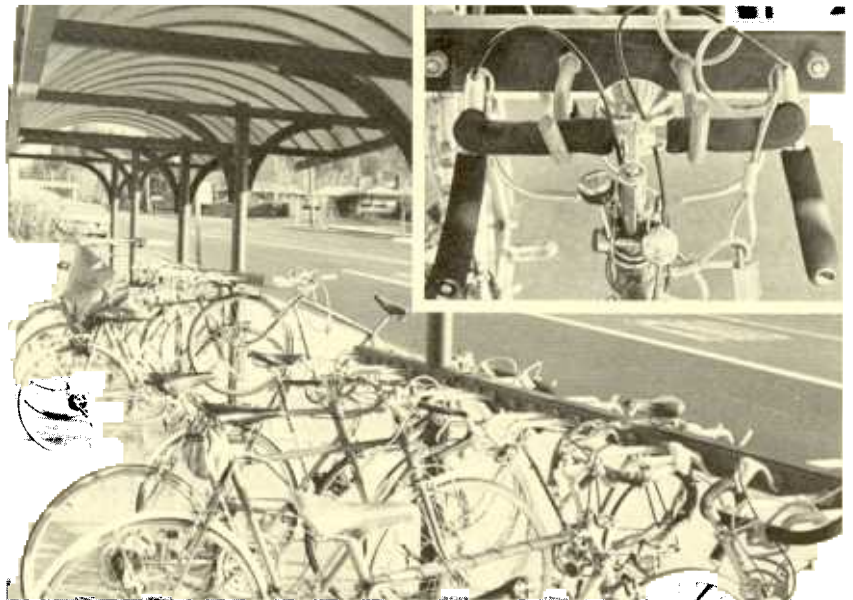
Protection from weather and theft (above). This simple design is located under a building overhang and in view of building occupants. A well-traveled covered walkway (below) provides the same benefits at the county courthouse. Limited car parking for downtown employees encourages bicycle commuting.



Existing structures can be adapted for bicycle parking. A metal fence provides secure parking and keeps bikes off the window glass of City Hall.



Located under a front entrance overhang, these stalls are filled by Federal Building employees.



City-provided parking ranges from inexpensive, commercial racks like these placed under an overhang at the library (above left) to a more elaborate, free-standing, covered rack designed in a city-sponsored competition (above, right and inset). At this site, three fiberglass-roofed units are placed end-to-end at a bus-bike connection to a local community college.

Businesses see the benefit of providing parking for employees and customers. Clockwise from upper left: shopping mall uses concrete berms to protect an island of bicycles in a sea of cars; restaurant provides covered parking; hospital employees get dry bikes on rainy days; Eugene's major newspaper purchased concrete "Bikekeepers" that blend with building's architecture.

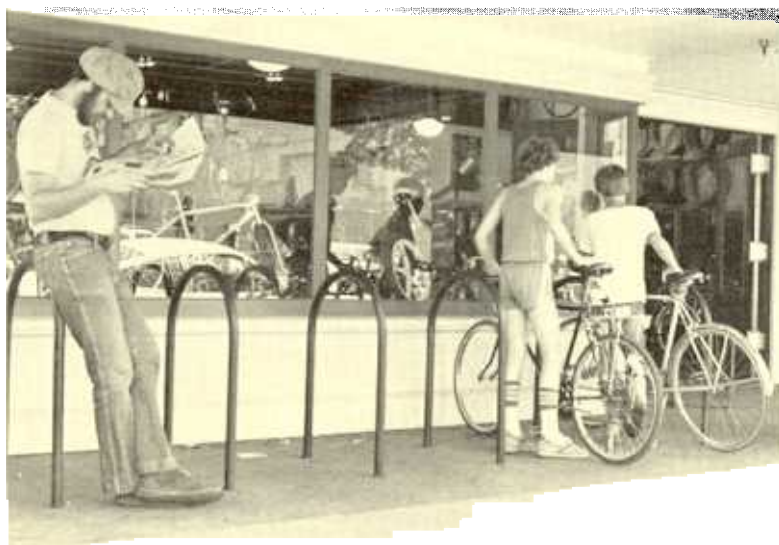



BENEFITS OF GOOD BICYCLE PARKING. The role of the bicycle in easing downtown automobile parking problems has not been lost on Eugene's officials. As many as 14 bicycles can be parked in the space needed to park one car. Consequently, several public buildings have been designed with bicycle parking included and city planners point out the need to developers. The Eugene zoning ordinance requires that bicycle parking be provided with new apartment construction. Though not required for other uses, some businessmen have seen the advantage of providing bicycle parking, both for esthetic and economic reasons -- Eugene's large cycling population tends to patronize businesses that provide convenient, secure parking.

A CHECKLIST OF BICYCLE PARKING CONSIDERATIONS. Here is a checklist to use when choosing and locating bicycle parking:

- 1) Is the location convenient to a destination used by large numbers of cyclists?
- 2) Is the facility in a well-travelled, visible location that will discourage theft?
- 3) Does the facility provide appropriate weather protection for the area's climate?
- 4) Will the rack hold bicycles without kickstands upright?
- 5) Can a cable or chain be used to lock the bicycle frame and both wheels to the rack?
- 6) Does the facility fit with its surroundings?
- 7) Is it sturdy enough to resist vandalism?
- 8) Does it create maintenance problems?
- 9) Can it be provided at reasonable cost?

How do they rate against the checklist? The design used by a Eugene bicycle shop (below, left) rates high in all categories. A well-used wood structure with blue canvas roof at a downtown office building (below, right) ranks particularly high in esthetics and location, but bicycles without kick-stands sag in the wheel supports.



No city making a serious effort to encourage cycling can afford to overlook the parking side of the cycling equation. While hard core cyclists will continue to ride in spite of a lack of parking facilities, that next layer of riders teetering on the brink can be turned into regular users if secure, convenient parking is available. 

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BICYCLES IN CITIES



Vol. IX

OFF-STREET BICYCLE PATHS

 The bicyclist whose daily commute includes an off-street path is fortunate. Rolling through a park or past a river beats waiting at smog-bound traffic signals.

Paths adjacent to the Amazon Drainage Canal and to the Willamette River* account for most of Eugene's 21 miles of off-street bike paths. Because of their strategic location close to the City center, these long paths serve commuter cyclists in addition to recreational riders. Many short segments of off-street paths are of equal importance to the commuter cyclist. These vital links may be only a few hundred feet long but they make through routes for bikes by connecting cul-de-sacs or discontinuous streets.

Commuter cyclists are reluctant to go far out-of-direction for an off-street path. Fortunately, some of Eugene's off-street paths provide more direct routes for commuter cyclists than do the city streets.

OPPORTUNITIES FOR SEPARATE PATHS. Properties under the jurisdiction of parks, schools, state highways, and municipal utilities are all obvious sources for independent bike paths in Eugene. Private land is important, too, especially for short bike links. The City often persuades developers to dedicate access ways between cul-de-sacs. In earlier years, such opportunities sometimes were overlooked. Ten



Concrete bicycle path, 12 feet wide, parallels Amazon Drainage Canal (**above**). This new section of path dips under recently reconstructed city street.

Asphalt path, also 12 feet wide, borders playing field (**left**) and is part of Riverbank Trail System. Bicyclists and joggers share Eugene's off-street paths.

Duncan McDonald

*Vol. IV Riverbank Trail System

years ago, a 300-foot easement from one subdivision to another got lost in the shuffle and the issue still is not resolved. One group of residents wants the connection since it cuts two miles off their bicycle and jogging trips to the Riverbank Trail. Another group fears intrusion by non-area users. So far the City Council has not supported condemnation of property to finish the connection. The enthusiasm of City staff members for bicycling has minimized such oversights in recent years.

Sometimes even a good idea supported by all parties encounters lengthy delays. Both the school district and the City wanted a 500-foot connection from the river bank to the street system, but it became mired in a jurisdictional dispute. "You pay for it; it's on your land," said the City. "You pay for it; it's your bikeway system," countered the School District. The two jurisdictions settled the matter, but it took three years.

Eugene bicyclists often point out the need for these short connections by wearing dirt paths through private property. Owners who tolerate this informal trespass may resist granting the formal easement needed to pave the path for year-round use. Sometimes an alternate route solves the problem. An instance of this kind occurred in east Eugene when several years of negotiation failed. City Staff, unwilling to recommend condemnation, substituted a paved, "S" curved path on State Highway property for the straight-line dirt path on the edge of a backyard. Bicyclists are content with the "S" curved path as the grass growing over the old route now attests.



"Cannery Connector" carves bikeway out of unused grass bank of highway fill.

Opportunities that local eyes miss may be obvious to outsiders. Engineers hired to develop the Eugene Bikeways Master Plan spotted the "Cannery Connector." It provides bicycle access through "Agripac," Eugene's main processor of fruits and vegetables. Most of the route follows little-used streets within the cannery, but space for one section was whittled from a grass bank along a highway. No easements nor any official designation was asked of Agripac. Recently, six years after use of the facility began, AgriPac requested that the City provide "Bike Route" signs to guide bicyclists. The route serves factory workers, but also serves university students living several miles across town.

Eugene seeks off-street paths that serve the recreational rider and the destination-bound utility rider.



UNDERCROSSINGS. Streets crossing the Amazon Drainage Canal were not designed with bike path undercrossings in mind. Vertical clearance for bicyclists is restricted. During heavy rains, the flooded paths can become impassable. Recently, the City took advantage of street reconstruction in three locations; both the street and the bike path were raised four feet. This decreases path flooding and retains adequate clearance.

Heavy rains sometimes flood bike path along drainage canal, detouring riders to street.

FENCING. A simple fence made of galvanized steel pipe serves as a guard rail on hazardous sections of independent path. Tried first in 1973 on the river bank, this fence continues to be satisfactory for most locations. The top pipe is placed 4 to 5 feet above the pavement, with a second pipe splitting the space below. Though vandals occasionally bend or remove sections of pipe, maintenance has not been a significant problem.

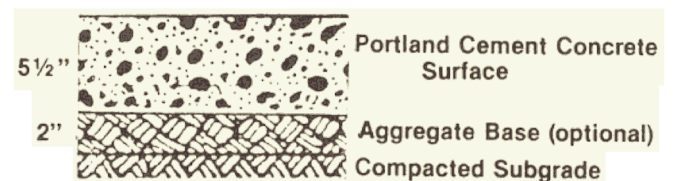
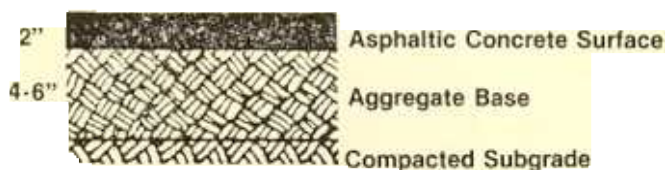
Where access from paths to adjoining property must be prevented, chain link fencing is used. A high chain link fence separates bicyclists from the municipal power plant near the river. A wooden fence or a chain link fence with wood inserts provides visual screening where paths border residences.



Charles Norgaard

Galvanized steel pipe fence (left and center) protects hazardous sections of Eugene's off-street paths. Occasionally, wood fences are used for visual screening (**center**) and chain link fences to prevent access (**right**).

PAVEMENT STRUCTURE. Paths are built with both asphaltic concrete and portland cement concrete surfaces. For asphalt paths, the usual construction places 2 inches of asphaltic concrete over 4 to 6 inches of crushed rock. Most concrete paths use 5 1/2 inches of concrete reinforced with 6-inch mesh of #10 wire. The concrete paths are laid in a continuous pour (as are the 4 1/2-foot-wide street gutters*), then scored and broom finished to provide a smooth ride and proper surface texture.



Though the relatively mild climate avoids freeze-thaw cycles, clay soils common in the area require careful subsurface preparation. Compaction of the subgrade prevents heaving and helps keep the finished path intact. Culverts may be needed for cross-path drainage.

Built in 1971, Eugene's first and only 8-foot-wide path proved dangerously narrow due to shared use by pedestrians, joggers and bicyclists. Now, 12-foot-wide paths are the standard. Soil sterilants, used to prevent the Northwest's lush vegetation from erupting through the pavement, are now specified -- again, the result of experience. On one section where soil sterilants were not used, disruption by vegetation forced pavement replacement within two years.

EDGE STRIPES & CENTER LINES. A 4-inch-wide, white, edge stripe helps guide cyclists at night, whether or not path lighting* is provided. Yellow center lines are used at sharp curves, narrow undercrossings or locations where sight distance is restricted. Warning signs and widening add to the safety of curved sections of paths.



White edge stripes help define paths at night, serving as substitute for, or supplement to, bike path lighting.



Yellow center lines mark curves and other hazards.

MAINTENANCE. On-street bike lanes are swept as part of routine street cleaning. Special sweeping can be scheduled for areas with a history of excessive broken glass. Extending paving into gravel driveways and parking lots limits gravel track-out and reduces the need for sweeping of on-street lanes.

Off-street paths present separate maintenance problems. Sweeping equipment must be sized appropriately. Mowing patterns must not throw grass onto paths.


In the summer of 1981, Eugene received a \$3000 federal grant to develop expertise in and equipment for maintenance of off-street bicycle paths. The solution is a cart loaded with maintenance tools and pulled by a cyclist. Eugene has enough off-street paths to keep a half-time employee busy during summer months.



Eugene's bicycle maintenance cart carries good brooms, pruning shears, and containers for broken glass and other litter.

Budget cuts may eliminate half-time summer maintenance position; regular employees will use cart for spot maintenance.



Off-street paths provide respite from traffic hassles as well as short-cuts for Eugene's regular bicyclists. The paths also win new commuters for the City's bikeway system by giving novice riders a safer place to ride. 

*Vol. X Signing and Lighting, page 4

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BICYCLES IN CITIES



Vol. X

SIGNING AND LIGHTING

Bicycle signs are signs of the times in Eugene, Oregon. More than a thousand have been installed since 1971 to mark the City's bikeway system.

Bicycle oriented signs aid cyclists just as other traffic signs assist motorists. Eugene's bicycle signing program helps cyclists find their way around town, helps them through tricky bike/car conflicts, and warns motorists of their presence. Non-cyclists are subtly encouraged to become riders by seeing signs informing them how to get to popular destinations by bicycle.

The Manual on Uniform Traffic Control Devices is the authority on design and placement of signs, but considerable discretion can be exercised on when and how signs are used. City staffers have designed some variations to deal with unusual cycling situations and Eugene continues to evaluate the effectiveness of bike signs. Some have been tried and removed; most have endured.

While bicycle signs may require new posts, often they attach to existing posts or structures. Park settings may use specially-designed posts.

GUIDE SIGNS. These dark green signs with white lettering identify bike routes and give cyclists directions to various parts of town. They also direct cyclists to critical yet sometimes hard to find links in the bikeway system. Both newcomers and veterans use and appreciate the signs.

Most common bike signs in Eugene are these green and white "Bike Route" guide signs.

River bank trail marker in County Park (left) guides bicyclists to downtown Eugene and to Valley River, the rival retail center.

Utility pole supports sign (below) pointing to connection between city street and river bank trail.

"Bike Route" and destination signs (right) supplement on-street lane markings in downtown Eugene.



WARNING SIGNS. Diamond-shaped warning signs, black on yellow, are familiar to motorists. They are equally useful in the bikeway system when caution is advised. "Bike Xing" and a black bicycle silhouetted on a yellow diamond warn motorists where independent paths intersect collector or arterial streets. A "Bikes Merge" sign warns both cyclists and motorists when bikes must merge with cars or merge across a busy auto lane.

One Eugene bicycle path which follows a drainage canal is subject to winter flooding. The yellow diamond warns of possible high water where the path dips beneath an arterial street. A second warning sign gives the 7' 6" vertical clearance of the undercrossing; cyclists need not duck but maintenance vehicle operators need to check their clearance. On Eugene's independent bicycle paths right-angle arrows mark very sharp turns just as is true on highways.

Along Alder Street which borders the university campus, pavement markings, one-way signs for cars, and special warning signs all combine to warn motorists that Alder Street has two-way bike traffic and one-way auto traffic.*

REGULATORY SIGNS. White signs with black or red letters tell motorists and cyclists what they can and cannot do. "Bicycles and Pedestrians Only" and "No Motorized Vehicles" mark the entrance to many independent paths. A "No Bicycles" sign stands at the vehicle ramp to Eugene's busiest bridge. The sign keeps bicycles off a steep ramp and directs them to an underpass with bike lanes.

At quiet neighborhood intersections where auto diverters have been installed, signs read "No Right Turn Except Bicycles" and "Do Not Enter Except Bicycles".

"Bikes Yield to Pedestrians" reminds cyclists of their responsibilities when bike paths cross sidewalks or when wide sidewalks are shared with pedestrians and joggers in city parks.

In spite of "One-Way Do Not Enter" signs, some cyclists persist in taking a short cut and riding against other bicycle traffic on a narrow sidewalk on Eugene's Ferry Street Bridge.

Plans call for widening the sidewalk to allow two-way traffic; in the meantime, signing helps some.



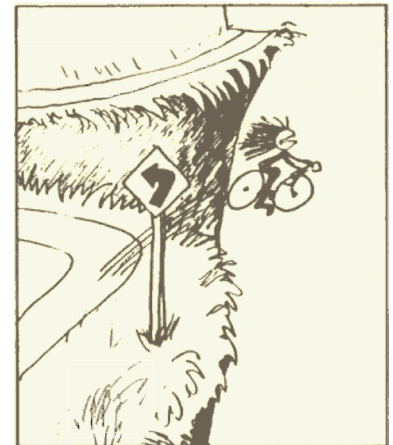
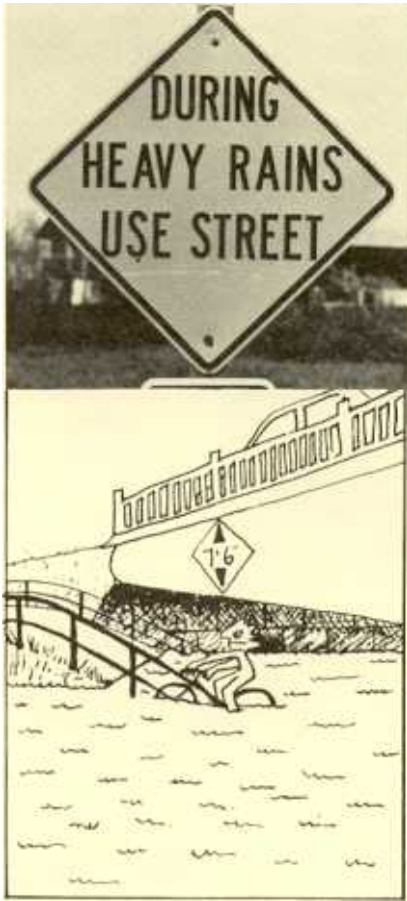
Push buttons for bicyclists actuate traffic lights.

TRAFFIC DETECTION DEVICES. At some busy intersections, Eugene provides fat push buttons at curb side and elbow height to actuate traffic lights. New, carefully positioned, bicycle-actuated detector loops imbedded in the street are in the experimental stage. Existing auto detection loops are relatively insensitive to bikes, but new stencils are being designed to guide bicycles to where the loop will detect them.

STOP SIGNS. Traffic engineers are careful to install "Stop" signs only when warranted, knowing that drivers and bicyclists respect the signs only if the need is apparent. Eugene treats bikes the same as cars when deciding where to place "Stop" signs. With the installation of semi-diverters** which exclude through auto traffic, two neighborhood streets became "bicycle streets." When bicycle traffic on these streets grew to exceed auto traffic on the cross-streets, the City changed the "Stop" signs to favor bicycle flow. Although the data base is small, it appears that this has improved the accident rate.

*Vol. VI On-Street Bicycle Lanes, page 3

**Vol. V Innovative Bikeway Designs, page 1



Warning signs, yellow with black letters and diamond shaped, are used when caution is advised.



Regulatory Signs, white with black and red letters, tell motorists and cyclists what they can and cannot do.

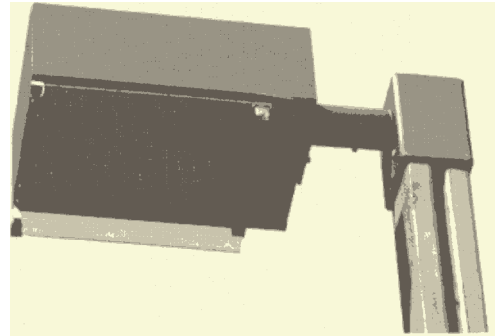
Bicyclists appreciate and obey this sign (**left**) which keeps them off a steep overpass and directs them to an underpass with bike lanes. **Motorists** observe restrictions favoring bicycles near the University (**above and right**).

LIGHTING. Eugene's climate is mild enough for year-round riding though rain and early darkness in the winter discourage half the City's regular commuters. While unable to do anything about the winter rains other than provide covered parking ('Vol. VIII Bicycle Parking'), Eugene has begun to solve the problem of darkness on off-street paths. New lighting on some paths and bridges adds to the safety of winter commuters and encourages riding during summer evenings. Adequate illumination is a crime deterrent as well.

Two types of pole lamps are now used on Eugene's bicycle paths. A shoe-box style with a clean, modern look directs a splash of light onto the pavement below. A canopy-top style mimics the street lantern look of earlier years. Both are resistant to vandalism. Small acrylic panels placed at hard-to-hit angles make these styles hard to damage. Globe-style lights along a local jogging path proved all too attractive as targets for rock throwers. Handy rock piles can increase vandalism problems for all the lights.

Both the shoe-box and canopy styles accept either mercury vapor or sodium lamp bulbs. Sodium light is yellow but uses half as much wattage, a significant factor in energy and cost-conscious times.

Three sections of Eugene's off-street paths now have pole lamps.



Shoe-box style mounts on 14-20' steel or wooden posts. If subject to vandalism, City adds clear acrylic panel to protect glass lens (**above**). Lights on Greenway Bridge and off-street path (**below**) use 100 watt, high pressure sodium lamp bulbs.



Lights with aluminum canopy and white acrylic panels (**left and above**) edge river-bank trail in new City Park. Spacing is about 120 feet. Lamp bulbs of sodium instead of mercury vapor reduce power consumption by 50%.



Signing and lighting are taken for granted by motorists. Eugene's experience has shown they're every bit as useful to cyclists.

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BICYCLES IN CITIES



Vol. XI

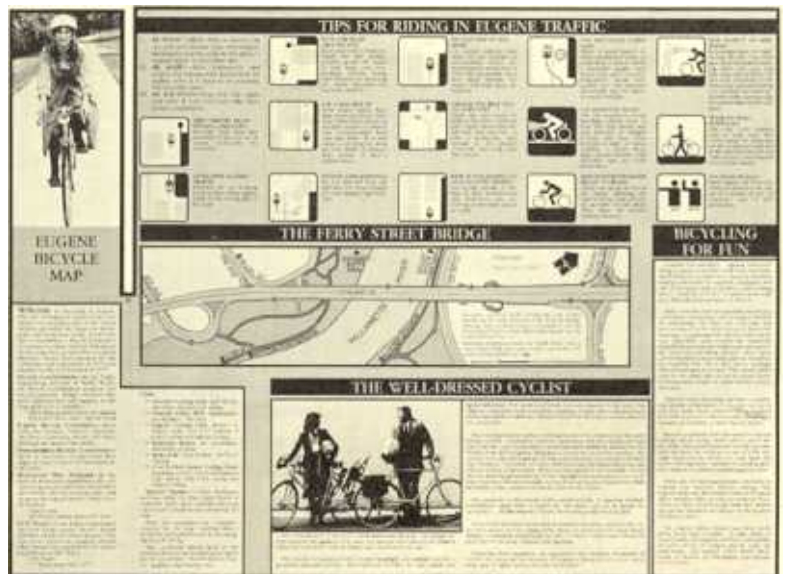
PROMOTION, EDUCATION, AND ENFORCEMENT

 Promoting bicycling in Eugene is like selling ice cream at a Fourth-of-July picnic: it is an attractive product with a ready market. Educating cyclists to ride effectively and safely has proven to be trickier. The notion that bicycling is a playful activity that just "comes naturally" is hard to stamp out.

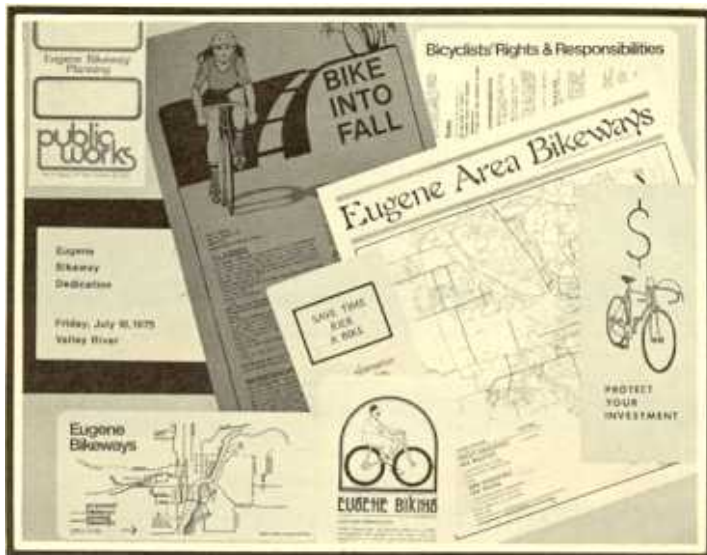
PROMOTION. An already-enthusiastic cycling population has readily accepted the City's promotional efforts. The City offers maps and brochures about the Eugene bicycle system to the public. A bicycle safety brochure and a simple map of the proposed system were the first promotional materials tried in 1971. Updated every few years, these materials chronicle the City's developing program. The most recent map, printed in 1982 on water-proof paper, is packed with useful information. In addition to route designations, it marks schools and other major destinations, indicates the locations of major hills and danger points, provides safety and educational information, and indicates bicycle rental locations and repair shops. For the first time, there is a charge for the map.*



Multi-colored bicycle map, 22" x 28", is printed on tough, water-proof paper. The wide gray lines circling the city center, isochronal lines, estimate distances bicyclists can ride in 5 minutes. Lines are closer together in hilly southern sections of city. Map back (**below**) sells bicycle safety.



*Map available from Traffic Engineering, City Hall II, 858 Pearl, Eugene, OR 97401. Send \$2.00.



City-provided maps and brochures promote as well as educate.

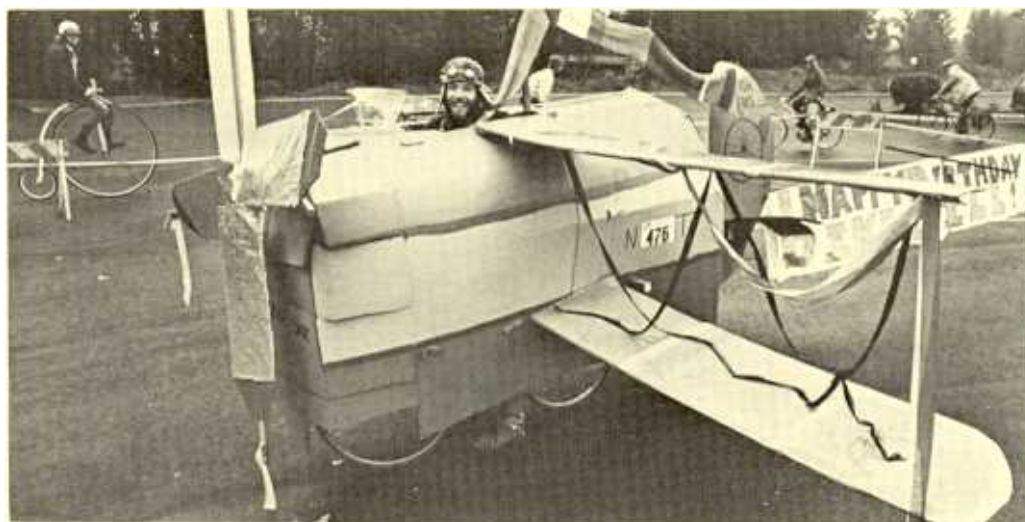
A police department brochure says "protect your investment" and urges bicyclists to engrave the driver's license number of the owner or parent on the bicycle.

Another pamphlet makes a direct effort to lure new commuter cyclists. Members of the Eugene Bicycle Committee took advantage of rush hour traffic stall to give the pamphlet to motorists waiting on a traffic-clogged bridge. The pamphlet title is "Save Time, Ride a Bike".

A booth at the County Fair proved to be a good promotion center. Lane County's week-long fair attracts one-third of a million visitors. Bicycle Committee members took turns manning the booth, giving out

materials and answering questions. A suggestion box and questionnaires helped identify bicycle trouble spots. However, county fairs consume not only cotton candy but also vast amounts of volunteer time. After five years, when the City's bicycle program was well accepted, the Committee gave up the fair booth with evident relief. During the program's infancy, the booth helped win public support.

When major new bicycle facilities such as bicycle bridges or important independent paths are put into service, dedication ceremonies net the bicycle program wide publicity. Dedication events include bicycle decoration contests, brass bands, plaque unveilings, ice cream, and speeches by local, state and national elected officials. One path dedication also commemorated the 10th anniversary of the state law that provides bikeway funding. A banner trailing a decorated bike read, "Happy Birthday, Bike Bill."



Dedication ceremony includes bike decoration contest and nets wide publicity for bicycle program. "Plane-o-bike" won first prize; but when pilot prepared to leave, rain-sodden machine fell apart.



Also important to the City's promotional program are the rides and tours conducted by the Parks and Recreation Department. These complement the activities of three local cycling clubs which offer tours and racing.

BICYCLE COORDINATORS. The City's two half-time bicycle coordinators, working in the Traffic Engineering Division, play a big part in the education and promotion efforts. They serve as a ready source of information about the City's cycling program. They speak to schools and civic groups and are a contact for the news media.

EDUCATION. The City's education efforts have had a frustrating side. Efforts to develop a safety education program in the schools have been stymied by a lack of curriculum time to devote to bicycle safety. A series of lunch hour commuter workshops designed to educate potential cyclists received only a lukewarm response from the business community. And, as the newspaper's Letters-to-the-Editor column suggests, there is still a wide gulf of misunderstanding between cyclists and the general public regarding the on-street behavior of cyclists.



City Bicycle Coordinator since 1976, Diane Bishop has taken two maternity leaves and currently job shares with Charles Nordgaard.

On the brighter side, the Parks Department teaches a popular series of classes and workshops on effective cycling. Classes on bicycle maintenance have proven particularly popular. The local newspaper has been an effective voice, running a number of well-written feature articles about cycling. Articles have ranged from general cycling safety to a discussion of helmets or riding the Riverbank Trail System. Twice-yearly bike safety campaigns are conducted by the Rotary Club. At the request of the Eugene Bicycle Committee, the local office of the Division of Motor Vehicles redesigned the route of its motor vehicle driving test to include driving next to and turning across an on-street bike lane.

Public service announcements aim at both motorists and bicyclists. One radio spot warned motorists: "The next bicyclist you hit might be your neighbor, your grandmother, or even your Mayor!"



The county's five Rotary Clubs conduct twice-yearly safety campaigns.

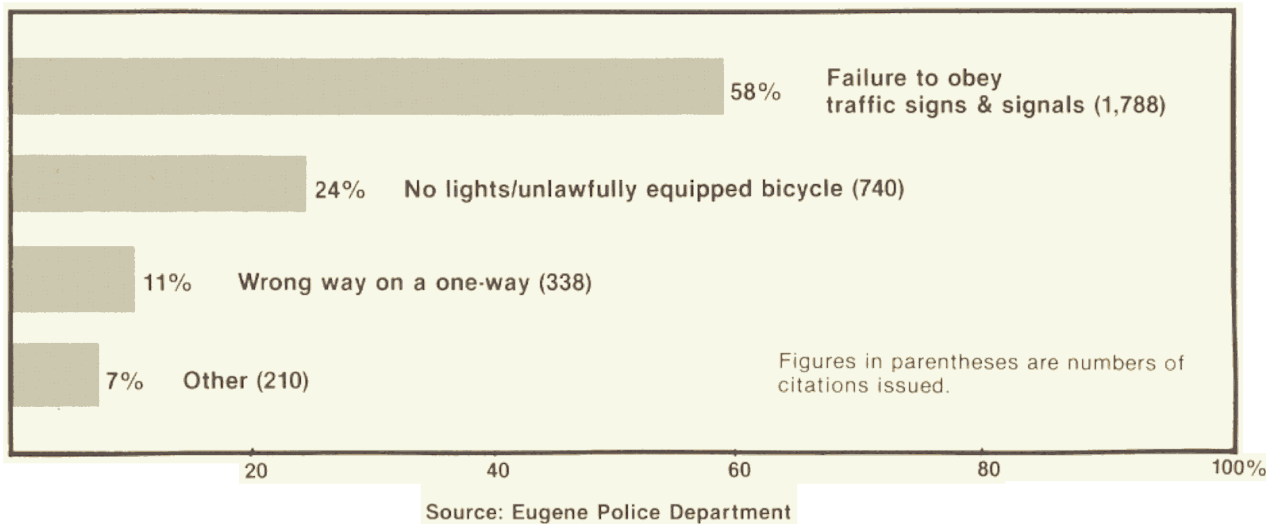
LICENSING FAILURE. Mandatory bicycle licensing, begun in 1972 and repealed by the City Council in 1977, did not discourage bicycle thefts nor generate revenue.

Problems with the licensing program centered on the use of existing bicycle frame serial numbers. The numbers were often incorrectly read or recorded, e.g. 4's look like A's, and coordination with other agencies proved impossible. Other licensing problems were: frequent changes in ownership and address; a sample effort to renew by mail yielded only a 17% response rate; enforcement was not practical; and costs exceeded revenues. When purported benefits, such as enhanced recovery of stolen bikes, did not materialize, voluntary compliance declined and bike shops stopped cooperating.

The City's current program is not mandatory. Community service officers or volunteers stamp driver's license numbers on bikes at community events. Since driver's license numbers are already part of the inter-agency computer system, information retrieval for stolen bikes is simplified.


LAW ENFORCEMENT. Eugene's success in putting large numbers of cyclists on the street makes brushes with the law inevitable. Statistics from the Eugene Police Department shed some light on the frequency of traffic violations by cyclists. During 1979, 1980 and 1981, a total of 3076 traffic citations were issued to cyclists. As the accompanying table shows, failure to obey traffic signs and signals led the list by a wide margin, followed by various equipment violations, mostly related to failure to use lights at night.

Citations Issued to Eugene Bicyclists (1979 through 1981)



Controversy continues to surround bicycle behavior at stop signs. Most bicyclists treat them as yield signs. Some officers ignore these violations; others interpret the stop sign requirement strictly. More bicycles seem to be adequately lighted than ever before -- probably the result of police ticketing, safety campaigns, and the availability of better bike lights.

Bicycle theft is a continuing and disheartening problem in Eugene. Most stolen bicycles are not recovered. However, the present practice of engraving driver's license numbers on bicycles increases the return of convenience thefts. Occasional bicycles are even returned from out-of-town locations.

An innovative effort to extend the long arm of the law to the City's off-street bicycle system involves putting police officers on bicycles and mopeds. During the Summer, uniformed and plainclothes officers patrol independent paths at irregular intervals to enforce cycling laws and generally make their presence known. This method of providing police visibility is particularly suited to the Riverbank Trail System. 



Information from **cyclist extends eyes and ears of police** investigating riverbank trail problem.

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BICYCLES IN CITIES



Vol. XII

FUNDING, USAGE, AND ACCIDENTS

O-O When developing a bicycle support system, enthusiasm is nice, but money is necessary. Without funding, even the best bikeway plan will remain on the shelf.

Eugene began its bike program in 1971 with no money. Bikeways were considered frills, not essentials like streets and traffic signals. Part of the planned solution was to focus on transportation cyclists, those people who would otherwise be using automobiles. In downtown Eugene, for example, by encouraging commuters to use bicycles, the City might save money through reduced car parking needs.

FUNDING SOURCES. Eugene has searched and scavenged for bikeway funds at every level of government and from some private sources as well.

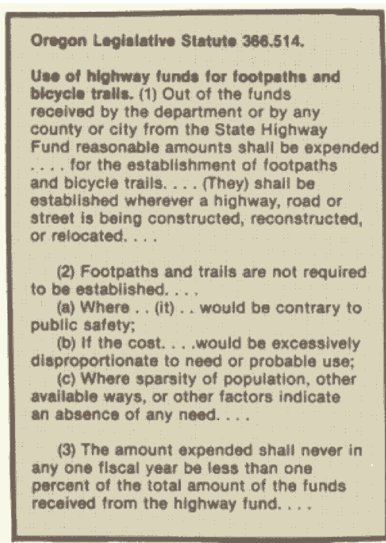
City Funds. The emphasis on bikes as a beneficial part of the transportation system helped win the all-important first entry for bikes in the City's 1972 capital budget. Since 1974, this budget item for bicycle facilities has averaged \$75,000. It has been used to match federal and state grants and for individual City projects. The Public Works Department includes striping of on-street lanes and other minor work as part of its normal maintenance budget. The Traffic Engineer's budget added funds for a City Bicycle Coordinator beginning in 1975. When bike lanes are added during reconstruction of collector or arterial streets, the "bicycle account" is usually not "charged" for the extra costs. Anticipated funds never materialized from a bicycle licensing program begun in 1972; costs exceeded revenues and the program was dropped in 1977.

Oregon Bridge Engineering Company



Joint funding for multipurpose use made Eugene's fourth bike/pedestrian bridge possible in 1982. The \$855,000 structure carries sewer, power, and telephone lines across the Willamette River. Addition of concrete deck and laminated wood and steel railings gave a bicycle crossing at minimal cost.

County Funds. Timber-rich Lane County had forest receipts to spare in the prosperous seventies. In the metro area, county money paid for paved highway shoulders, bike paths in parks, and bicycle parking* at new county buildings.



Oregon's 1971 "Bicycle Bill" helped fund Eugene's bikeways.

State Funds. Beginning in 1971, state legislation required that one percent of the State Highway Fund (i.e. gasoline tax) be used for footpaths and bicycle trails. Promptly nicknamed the "Bicycle Bill", this applies not only to state agencies, but also to cities and counties. "Bicycle Bill" funds built about one-third of Eugene's Riverbank Trail System**. In 1980, Oregon voters passed a constitutional amendment restricting gas tax expenditures to highway rights-of-way. The one percent "Bicycle Bill" requirement remains intact, but projects like riverbank trails are no longer eligible. Now state bicycle monies improve highway shoulders benefiting both cyclists and motorists.

National Bikeway Demonstration Funds. Eugene's \$270,000 Greenway Bicycle Bridge, constructed in 1976, was one of several dozen projects funded nationwide from among hundreds submitted.

Federal Aid Urban Funds. Received on a per capita basis by most metropolitan areas, these funds were used by Eugene for both on-street and off-street bicycle facilities in connection with eligible street and highway projects.

Other Federal Programs. Funds from the Bureau of Outdoor Recreation built one mile of riverbank trail. CETA-funded workers also built another short section. Community Development funds paved short sections of paths linking discontinuous streets in low income areas. Money from a program to reduce auto use helped fund Eugene's fourth bicycle bridge. Past successes of the Eugene bicycle program undoubtedly helped persuade the federal agency of the value of this project. Federal and state traffic safety programs provided for Eugene's Bikeway Master Plan and its 1979 evaluation.

Jointly funded projects. Three of Eugene's four bicycle bridges*** carry utility pipes. Two are water line crossings paid for by the local municipal utility. The most recent combines the bicycle bridge with a sewer trunk line, telephone cables, power lines, and even a conduit to carry traffic signal interconnections. The combined facility saves money for all parties, both public and private.

Local donations. The principal newspaper, the Eugene Register-Guard, provided prizes and promotion for bridge and path dedications. A city neighborhood group, concerned about security, raised funds for lighting along a path. The area's Rotary Clubs conduct safety campaigns. Local media provides spot announcements and safety information.

BICYCLE USAGE. Through an on-going program of bicycle counts, the City monitors bicycle use and refines the bike route system. Bikes on independent paths or on-street lanes are relatively easy to count by using standard mechanical counters with surgical tubing substituted for the normal heavy hoses used for motor vehicle counts. On signed routes, however, manual counts must be conducted since autos and bikes are mixed on the street. Whenever practical, Eugene's traffic engineer has his personnel count bicycles separately while conducting manual counts for intersection analysis.



Jimmi Harris, Oregon Magazine

Commuting, Eugene style



Rainy winters reduce bicycle commuting traffic to downtown by about 50%. Only 22% of University riders stop bicycling.

Data on Usage - Eugene Bikeway System

- Facilities bring riders. Counts taken in 1978 revealed an average 76 percent increase over counts at the same locations in 1971.
- Bicycles account for almost 7 percent of the traffic on the one-way couplet with left-side bike lanes in downtown Eugene (600 to 700 bicycles on each street).
- The highest average weekday counts on bicycle lanes, over 3000, occur on the two-way bike, one-way auto streets near the University. A signed route nearby serves the hospital and downtown area as well and has similar daily bike volumes of over 3000.
- Average weekday volumes for most on-street bicycle lanes range from 100 to 1000 in each direction. Many are in the 200 to 300 range.
- On off-street paths along the river or drainage canal, average weekday commuter volumes vary from 200 to 1000. Fair-weather weekend counts are much higher.
- Work, shopping or school trips (i.e. transportation trips) account for half the bicycle trips on Eugene's three bicycle bridges.
- Cyclists on Eugene's bicycle bridges are younger than average, though half are over 25. Cyclists come from all income groups, but lower income individuals are over-represented.
- Half the Greenway Bridge bicycle trips would previously have been made by automobile.
- Saturday or Sunday counts on the Greenway Bridge, where a permanent counter is installed, have exceeded 2000. Bicycle volumes on the Autzen Bridge, near the University, are much higher.
- Summer weekday counts on the Greenway Bridge more than tripled from 300 in 1977, the year the Bridge opened, to over 1100 in 1982. Facilities bring riders.



Recreation bicyclists swell traffic on bridges in summer. Yet transportation bicyclists account for nearly half the bridge crossings in the total year count.

Eugene's future bicyclists ride in carts. Three new cart manufacturers in Eugene offer optional rain covers, kids' seats with harnesses.



Duncan McDonald




Front page picture captioned, "Perilous Journey," is part of local newspaper's campaign for helmets. News stories of serious bicycle accidents always add helmet data.



Use of helmets seems to be increasing. Informal survey suggests about 20% of Eugene's regular commuters use helmets.

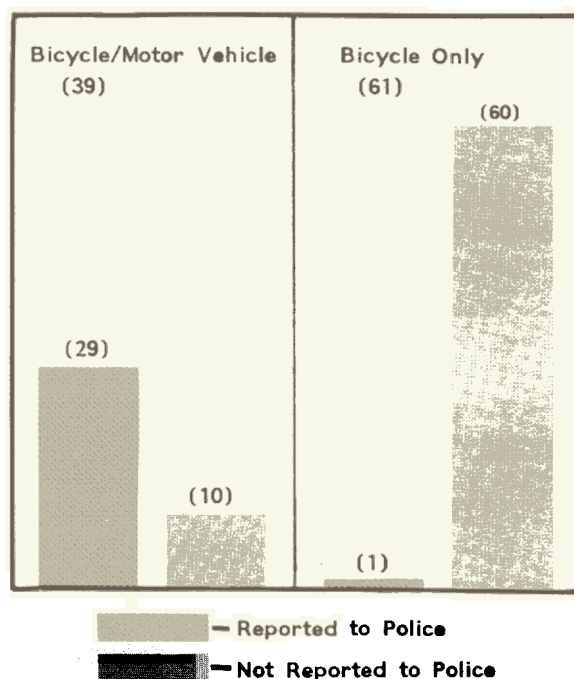
ACCIDENTS. Eugene has lots of bicycles and lots of bicycle accidents. But how many and what kind? In the fall of 1978, the consultants hired to evaluate Eugene's bikeway plan* studied bicycle accidents. With the help of the Bicycle Committee, they enlisted the aid of the medical community. Voluntary accident report forms were distributed at the emergency rooms of the City's two hospitals and the University's Health Service, where studies showed 97% of bicycle accident victims were treated.

For a three month period, the responses were compared with police reports. Of the 100 injuries, nearly two-thirds did not involve motor vehicles. These accidents are only rarely reported to police (1 of 61). Bicycle-motor vehicle accidents are much more likely to be reported to police (29 of 39). The hospital-distributed report forms revealed design problems such as blind corners, and maintenance problems such as unpainted traffic islands, large sidewalk cracks and gravel on bike paths and lanes. In spite of their value, it proved difficult to sustain interest in the voluntary accident reports, and they were discontinued after a year. Police Department reports are still used.

Bicycle accident data can be used to design and evaluate bicycle facilities and win Council support. Accident data influenced the striping patterns of and won the day for bike lanes on a controversial east-west arterial. Analysis of accident data also revealed that sidewalk bike use had accident rates nearly three times the average for signed routes or striped lanes. This statistic increased the Bicycle Committee's resolve to avoid sidewalk bike routes. 

* Vol. II Eugene Bikeways Master Plan

100 Injuries to Eugene Bicyclists
Fall 1978



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